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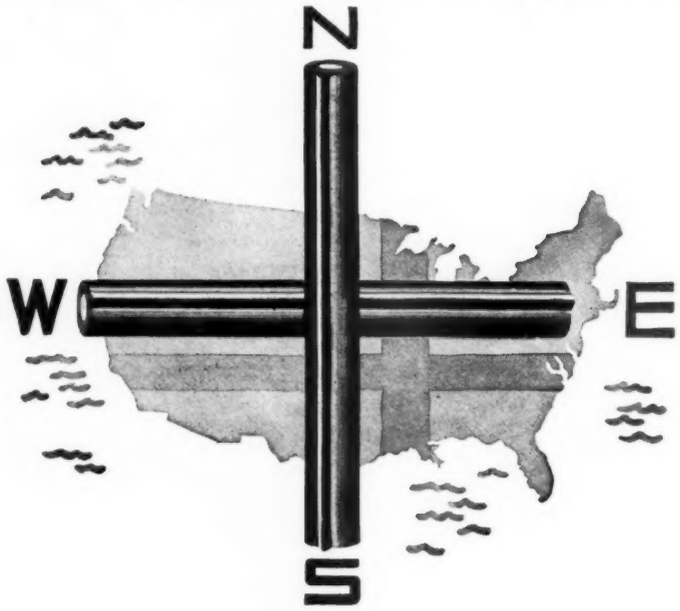

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Railway Age

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Tells how bumper crop was moved without car shortages or unloading grain on the ground.

Railroad Builds Large Plant for Truck Operator 200

An article describing the Baltimore & Ohio's Chicago Terminal facility for Keeshin Motor Express which affords tailboard space for 200 units.

Diesel Engine Maintenance on the Canadian National 208

I. I. Sylvester, Special Engineer of the Canadian National, explains how complete service records, centralization of repairs and steam locomotive repair methods aid in reducing maintenance costs.

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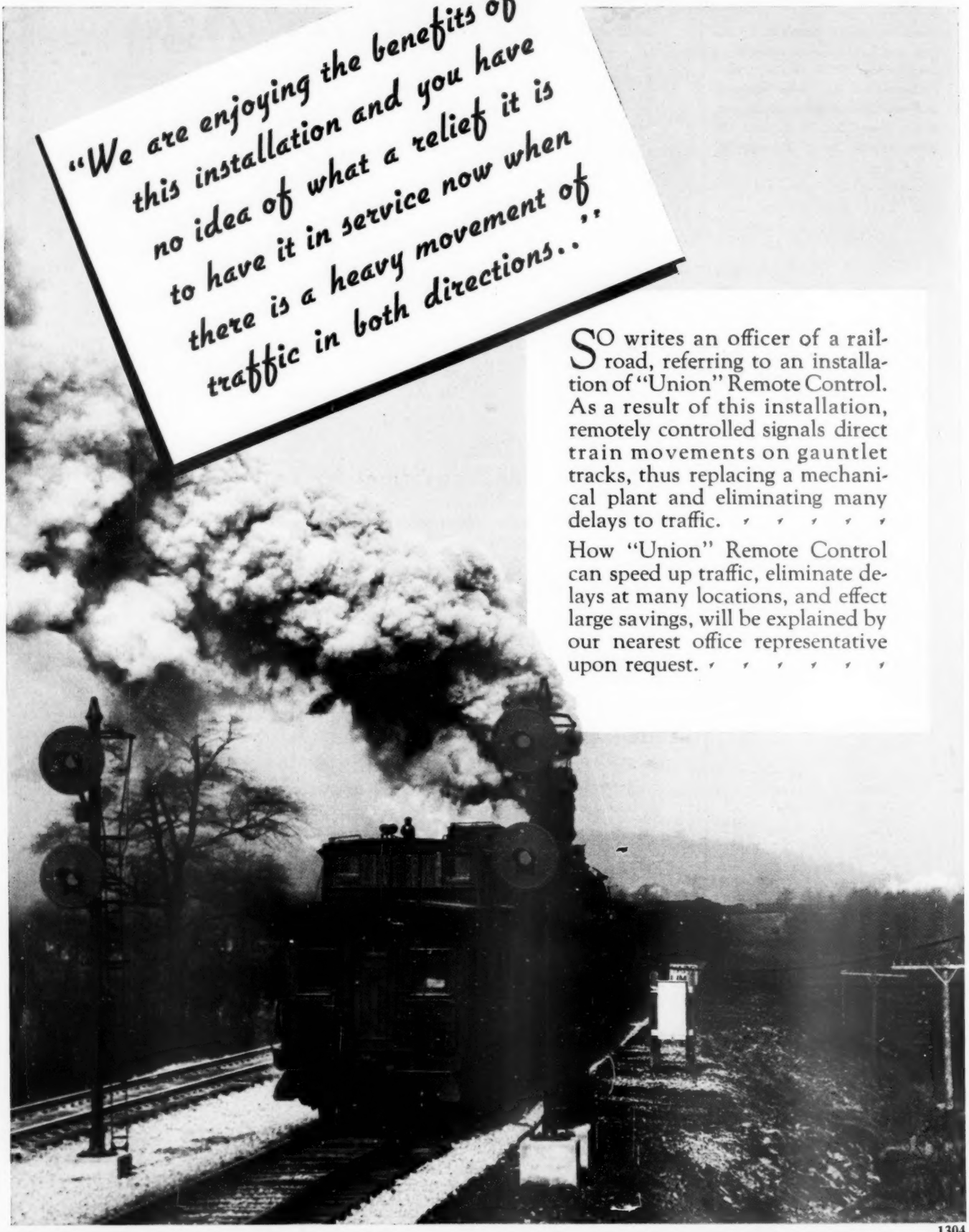
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The Week at a Glance

CARLOADINGS: Revenue freight loadings in the week of July 31 totaled 783 thousand cars—an increase of slightly less than 5 per cent over last year.

●

RESEARCH: The A.A.R. has enlarged its research department, heretofore called the Division of Equipment Research, giving it the new name of Engineering Research Division. The division will have jurisdiction over all research relating to equipment, structures, track and maintenance—as well as problems in physics and metallurgy; and over all classes of materials and supplies used by the railways, including fuel. L. W. Wallace, who has headed the Equipment Research Division, will be director of the enlarged department, and will be assisted by G. M. Magee, heretofore assistant engineer of the K. C. S.

●

STANDARD CARS: Efforts to gain adherence by the railroads to standard designs for freight equipment have not been completely successful—yet almost 92 per cent of the house and hopper types ordered by the railroads in the 14-month period ended June 7 conformed completely, or very closely, to A.A.R. standards. An editorial herein reviews the history of the move toward standardization, and suggests a modification of this objective to meet modern conditions of new materials and innovations in construction methods.

●

RECORD WHEAT MOVE: The roads serving Kansas City and other important interior wheat markets in the Southwest handled all-time-record movements into these terminals in July. Our Transportation Editor has an account herein, based on first-hand information, of how the railroads performed what Clyde Reed (chairman of the Shippers Advisory Board in this territory) called "the swellest job of moving the southwest portion of the winter wheat crop" that he had ever seen.

●

B. & O.-KEESHIN: The Baltimore & Ohio has built a modern motor freight terminal at Chicago for use by the Keeshin Motor Express Company, which operates trucks in co-ordination with the B. & O.'s rail service. An illustrated article herein describes this terminal, which provides tailboard space for 200 trucks, and office space, and cost $300,000.

●

TRAIN SERVICE WAGES: The fact that the railways have granted a wage increase to the "non-operating" unions is no justification for a similar increase to train service employees, is the contention of the leading editorial herein. It is pointed out that, by a wage decrease made in 1922 in non-operating classifications but not in train service, a disparity in wages between train and other service was set up; and that this disparity has greatly increased in recent years by the increase in train speeds which has increased the hourly earnings and shortened the work-day in train service. A further wage increase would call for a further rate increase and, it is contended, the roads would be in a better position in asking for the latter if the former is forced upon them rather than granted voluntarily.

●

C. N. R. DIESELS: One of the pioneer users of Diesel power, the Canadian National, has, with 12 years experience behind it, developed a thorough maintenance program for this class of engines—a program described by I. L. Sylvester, special engineer, in a recent paper which is published in abstract herein.

●

$200 FOR NAME: The Milwaukee is offering a prize of $200 to the paying passenger who suggests the name which it selects for its new Mason City-Chicago fast train which was put in service on August 8.

●

STUNT TRAINS: The few dollars of extra revenue which the railroads take in from the operation of photographic trains, specials for fans and excursions via unusual routes would probably vanish quickly into red ink if the time of railway officers who accompany these trips were charged against them. But when the space freely given by newspapers, newsreels and other publicity outlets is credited to the stunt trains, as it should be, is there any other recent example of railroad enterprise which is proving more profitable?

●

COLLOQUY ON UNIONS: L. E. Keller, statistician for the Brotherhood of Maintenance of Way Employees, has written a detailed letter defending the responsibility and democracy of the railway unions which we questioned in the leading editorial in our July 10 issue. We publish Mr. Keller's letter and our reply to it in an article herein under the heading "Are R. R. Unions Responsible?"—and the answer to that question we confidently leave to our readers when they have read this article.

●

4-WHEEL TRUCK: At the recent convention of mechanical officers in Atlantic City, L. K. Sillcox recommended the adoption of the 6-wheel truck for high-speed, light-weight passenger cars, because of thermal cracked wheels attributed to high speeds. In a communication herein, E. W. Test, of the Pullman-Standard Car Manufacturing Co., submits evidence that thermal cracks are on the decrease despite higher speeds, and argues the case for the 4-wheel truck.

●

THROUGH ROUTING BILL: The Senate has passed S. 1261, a bill which would amend the Interstate Commerce Act by giving the Commission authority to prescribe the shortest routes for shippers. The bill would only give the Commission authority to do what it has been doing for the past 19 years. A similar bill is pending before the House Committee on Interstate and Foreign Commerce.

MORE BUILDING: Railroad traffic revival has failed to keep pace with the general business upturn, not primarily because of tonnage lost to competitors, but because of the failure of the revival to occur in industries which contribute most to railroad traffic, building particularly. This is the contention of M. D. Morehouse, analyst for one of the large stock exchange firms, in an article published herein. Mr. Morehouse estimates what restoration of a normal volume of building would mean to the railroads in traffic and revenue.

●

NORTHERN SECURITIES: The Northern Securities Company, principal in a famous Supreme Court anti-trust proceeding in 1904, passed out of existence on August 11 when stockholders ratified its dissolution. Principal holdings of the company since the Court compelled it to divest itself of its N. P. and G. N. stock have been the stock of the C. B. & Q. and a coal company.

●

WHEELER PROBE: Senator Wheeler's committee investigating railway financial transactions took a recess for several weeks on Wednesday, on which day it completed its inquiry into the financial set-up of the Van Sweringen companies. The committee accused the C. & O. of a considerable number of misdeeds, among them the diversion to the purchase of stock in other companies of funds secured from the sale of securities issued to finance additions and betterments. Earlier in the week the committee turned its spotlight on the Virginian, and the relationship to it of the Koppers Company.

●

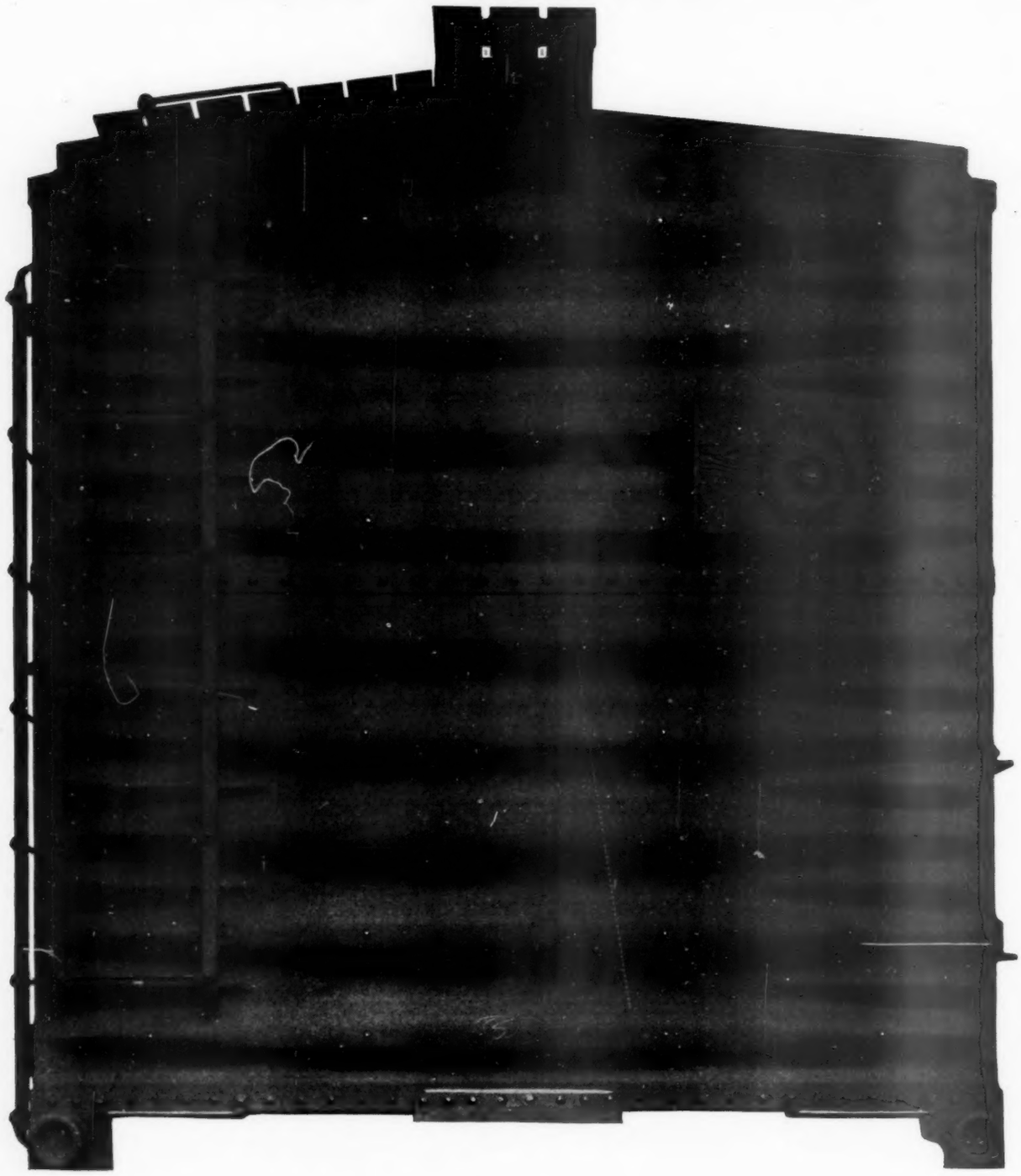
MERGER ENJOINED: The consolidation of Alleghany Corporation and Chesapeake Corporation—two of the companies through which the "Van Sweringen lines" are controlled—has received a set-back in the form of a temporary injunction granted on Wednesday by Circuit Court Judge Dickerson at Baltimore, plaintiffs being two investment trusts which have large holdings in Chesapeake Corporation.

●

BRITISH WAGE HIKE: Employees of the British railways have been awarded a restoration of the remaining 1¼ per cent deduction from their pay by the Railway Staff National Tribunal, according to cable dispatches from London. In 1931 a deduction of 2½ per cent was put into effect and half of it was subsequently restored. Other pay concessions of a minor nature—mostly in favor of the lowest paid employees—were also made in the award of the tribunal, which has as its chairman Sir Arthur Salter, famous economist.

●

EQUIPMENT: Orders for two small locomotives are reported this week—one of them for export, and the P. & P. U. has given a contract for 25 gondola cars. Inquiries have been issued for 125 freight cars—not counting a rather large inquiry from South Africa.



WHEN THE DRAFT GEAR STOPS

THE DREADNAUGHT END STARTS

YIELDING UNDER EXTREME IMPACTS ONE FOOT
AS A CUSHION AGAINST THE SLIDING LOAD

RAILWAY AGE

The Advances in Railway Wages

Last week a committee representing railroad managements agreed with a committee representing fourteen labor unions to an advance of 5 cents an hour in the wages of about 800,000 "non-operating" railway employees. It is estimated that this advance in wages, together with the increase in pay roll taxes that it will cause, will, if it is accepted by the members of the unions, increase the annual operating expenses and taxes of the Class I railroads about $98,000,000 a year. The original demand of these fourteen unions was for an advance of 20 cents an hour. There is under way a movement of the five train service brotherhoods, already backed by a strike vote, for an advance of 20 per cent in the wages of train service employees.

The recent developments forcibly recall what was occurring on the railways just twenty-one years ago this month principally because of some of the contrasts between the conditions that existed then and the conditions that exist now.

1916 and 1937—A Contrast

The movement of the train service brotherhoods in 1916 for the establishment of an 8-hour day at 10 hours' pay and time and one-half for overtime was estimated by the committee of managers representing the railways to involve $100,000,000 annually in operating expenses—an amount almost the same as that involved in the agreement reached with the labor unions by the committee of managers last week. In 1916, however, the committee of managers refused to grant the demands made by the labor unions and was backed by the presidents of the railways in doing so. The controversy was carried to President Wilson, who proposed a basis of settlement. The railway presidents rejected this and countered with an offer of arbitration, saying they could not assume the responsibility to their security owners and the public of granting such large demands unless in accordance with an arbitration award. The result was that President Wilson recommended, Congress passed and the Supreme Court some months later upheld the Adamson Act establishing 10 hours' pay for 8 hours' work as the basis of train service compensation.

Conditions Then and Now

Contrast, now, the conditions in 1916 and at present. In 1916 the average freight rate of the railways as measured by their average revenue per ton-mile was the lowest in any year in history, being only 7.1 mills. Furthermore, they were not confronted with outside competition as they are now. Their average revenue per ton-mile in the first four months of 1937 was 9.31, or 31 per cent higher than in 1916. Obviously, therefore, their freight traffic could have stood an advance in rates to offset an increase in operating costs much better in 1916 than it could now. In 1916 they were earning an average return of 5.9 per cent on their investment—the highest ever earned by them in any year. In the first six months of 1937 they earned at an annual rate of only 2.76 per cent. Obviously they could have much better afforded to have had their net operating income reduced by an advance in wages in 1916 than in 1937. The average hourly wage of railway employees in 1916 was 28.3 cents per hour and their average annual wage was $892. Their average hourly wage in 1936 was 69.1 cents, or 144 per cent higher, and their average annual wage $1,735, or 95 per cent higher, than in 1916. Obviously, therefore, there would have been much more justification for refusing an advance in wages in 1937 than there was in 1916.

Why, then, have railway managers agreed to as large an advance in 1937 as they refused to grant in 1916 without arbitration? Because they were not afraid in 1916, and they were afraid in 1937, to take a stand in accordance with what they believed were their duty and responsibility to their security owners and the public.

How About Further Wage Advances?

The representatives of the fourteen labor unions made clear that they would not submit the controversy to arbitration. Under the Railway Labor Act this

would have resulted in the appointment by President Roosevelt of a commission to conduct hearings and make a report. In view of the general present attitude of the government toward labor the managers of the railways apprehended that such a commission would be so constituted that it might report in favor of a larger advance in wages than could be determined upon by collective bargaining.

Negotiations will soon be resumed by the committee of railway managers with the five train service brotherhoods. It is absolutely inconceivable that their demand for a twenty per cent advance in wages will be seriously considered. The granting of even one-quarter of their demands, as was done in the case of the fourteen non-operating unions, would make the total advances given to all railway employees about $150,000,000 annually. The increase in railway net operating income in the first six months of 1937 was twenty-five per cent, or at an annual rate of about $165,000,000. In other words, if one-fourth of the total advance in wages demanded by all the unions actually had been in effect throughout 1937 the railways would have had virtually no increase in net operating income in 1937, although in the first half of this year their net operating income was still 48 per cent less than in the first half of 1929.

Train Service Brotherhoods' Poor Case

It is plain that, measured by any standard, the railways cannot afford to grant an advance in wages to the train service unions. Furthermore, it is easily demonstrable that, measured by any standard, there would be much less justification for it than for the advance already granted to the members of other unions.

All basic wages in the railroad industry were thoroughly reviewed and considered by the Railroad Labor Board, a government body, in 1920, before it granted general advances by its Decision No. 2. In 1921 the Railroad Labor Board, because of the depression, authorized reductions in the wages of all employees. In 1922 it authorized further reductions in the wages of non-operating employees, but no reductions in the wages of train service employees. This created a disparity between the wages of the two classes favorable to the train service employees. Since then the disparity has been increased by a steady upward trend in the hourly and daily wages of train service employees due to increases in the speed of trains that have reduced the number of hours of work required of them to earn a day's pay, to the installation of larger locomotives for the operation of which the wages are higher, and to other reasons. In consequence, train service employees are now being paid substantially much higher wages in comparison with those of other railway employees than prior to the readjustments made in 1922, and they are, in fact, in proportion to their hours of work, probably the highest paid employees of any industry in the United States. Furthermore, they cause the railways much more trouble by demanding "make-work" legislation than all other employees.

In view of all these circumstances, it would appear that the committee of railway managers, backed by the presidents of the railways and by public sentiment, should take and maintain a determined stand against any advance whatever in the wages of train service employees at the present time. The train service unions have a right to demand arbitration under the Railway Labor Act, and if they do so the railways should agree to it. If the train service unions do not want arbitration they can get a commission appointed by the president to investigate and report upon the controversy.

No More Wage Advances!

The railways should not voluntarily grant any further advance in wages. If they do they will put themselves in a very bad strategic position. The advance already granted will force them to appeal to the Interstate Commerce Commission for some increase in rates. The addition of an advance to the train service employees would necessitate petitioning the commission for a still larger advance in rates. The commission is a government body. The railways should put themselves in a position where, if they have to ask for an increase in rates largely because of an advance in the wages of the train service employees, they can go before the commission and show that at least this part of their increase in wages was forced upon them by either a government arbitration board or a government commission.

The time has come when railway managers should fully accept the responsibility and perform the duty of standing and fighting for sound economic policies affecting the railways. They may be beaten, and the railways may be forced into government ownership either by strikes or because of government-compelled operating expenses in excess of the revenues that government regulation will let them earn. If, however, they are to go into government ownership, their present managers should want to leave a record showing that they at least did not, from fear of facing realities, commit errors of omission or commission that largely helped bring about government ownership.

Indexes to Volume 102

The indexes to the latest volume of the *Railway Age*, January to June, 1937, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age*, 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

Standard Cars And Progress

The history of the development of standard freight-car designs by the Association of American Railroads and its predecessor, the American Railway Association, covers a period of twenty-five years. In 1912 the Association passed a resolution requesting the Master Car Builders' Association to develop a design for a standard box car; it repeated the request two years later. Soon after the second request the A.R.A. appointed a subcommittee of builders' representatives for the purpose of creating its own standard design. This caused the Master Car Builders' Association, in 1916, to defer further action on the development of its design which had already been tentatively presented by the Car Construction Committee at the 1915 convention. The A.R.A. subcommittee prepared three designs and had sample cars built in 1917, only to have its entire effort submerged by the entrance of the United States into the European war. Then, after a few months, came the so-called U.S.R.A. standard designs, in producing which the work of the A.R.A. subcommittee was disregarded.

In 1919 the two mechanical associations were merged in the American Railway Association as its Mechanical Section and the Committee on Car Construction again took up the development of the standard car designs. The basis of its procedure was laid in 1920 when certain fundamental dimensions and strength minima were adopted by letter ballot of the Mechanical Section and approved by the Association. From 1924 to 1930 there followed the adoption as recommended practice of 40- and 50-ton single-sheathed box cars, 40- and 50-ton double-sheathed box cars with wood sheathing and wood lining, and 50- and 70-ton self-clearing hopper cars. During this period the committee was unsuccessful in securing approval of a steel-sheathed wood-lined box car.

Since 1932 the Car Construction Committee has been operating under a new program of fundamentals, among other items including the disregard of A.A.R. standard dimensions for the benefit of the design as a whole, annual review and revision, and the inclusion of proprietary devices as alternates. Under the new program the actual designing has again been done by a builders' committee. The 40- and 50-ton steel-sheathed box-car designs and 50- and 70-ton hopper-car designs produced under this program have been adopted as standard (the first designs to be adopted as standard by the Association); 40- and 50-ton stock cars have been approved as recommended practice, and a design for a steel-sheathed box car of increased height is now before the Mechanical Division for a letter-ballot action.

With one exception, never during this long history of standardization projects have committee designs been fully accepted and utilized as a whole by all the railroads. The one exception was during the war when the railroads were being operated by the government. Then all cars were built to U.S.R.A. designs and allocated to the railroads from the central authority at Washington. The best results ever attained voluntarily are indicated by the revised figures of the current year's report of the Committee on Car Construction which show that 91.6 per cent of the new house type and hopper cars ordered between April 1, 1936, and June 7, 1937, are either A.A.R. standard throughout or conform closely to A.A.R. basic designs, except for floating center sills, increased inside dimensions of box cars and variations in hopper heights to meet specific conditions.

Comment in an earlier issue pointed out that the lack of complete acceptance of these designs was not in itself a criticism of the excellence of the designs, a number of features of which have received even wider acceptance than the designs as a whole, but that the failure of complete acceptance had to be expected, human nature being as it is and there being no central authority to compel acceptance against the interests or desires of the individual managements.

There are at the present time two other factors operating against the general acceptance of standard designs. These are the growing appreciation of the superior qualities as structural materials of the new high-tensile steels and the rapid advance of welding as a substitute for riveting in the fabrication of cars. The new high-tensile structural steels, which are produced by the same methods and require essentially the same treatment in working as the conventional structural steels, have been available for about three years. During that time a number of designs of house and open-top cars have been developed for the purpose of taking full advantage of the superior properties of these materials. While it cannot be said, without qualification, that the use of these materials has completely passed the experimental stage, some roads have accepted them to the extent of specifying them for cars by hundreds and, in a few cases, by thousands. Indeed, the further experimental phases of their development lie in the methods of their utilization rather than in the determination of the qualities of the materials themselves.

The use of welding as a substitute for riveting has been in progress for an even longer period. Some railroads, as well as some builders, have gone extensively into the development of shop practice as well as design details adapted to welding technique. This has been done, both in application to the conventional structural steels and to the new high-tensile structural steels. It is a promising development in which there is a rapidly growing interest on the part of the railroads.

Indeed, both of these developments were anticipated by the Committee on Car Construction in 1932 at the time it presented its proposed standard single-sheathed box-car design. "We believe," said the committee in

part, "that in the not far distant future, both of these deviations from present general construction practice [alloy steels and integrally welded constructions] may be expected to provide further practical means of reducing weight."

The evolution of these new practices must in the main be worked out by individual railroads. The Association of American Railroads can scarcely undertake to anticipate the character of developments for which there is no precedent and in the working out of which no small amount of ingenuity will be involved. The fact that such developments are going forward rapidly, however, and, indeed, that 1,850 lightweight alloy-steel cars are included among the 91.6 per cent ordered during the past year to A.A.R. basic designs, raises certain questions concerning the future of the present standardization program of the association.

The first question concerns the relationship of that program to continued progress in the adaptation of these new elements of car construction. One of the difficulties in the way of securing 100 per cent adherence to the present standard car designs is the fact that they depart from long-established A.A.R. standard dimensions; the new center-plate height interferes with the use of secondhand trucks on new cars. Will not the continued effort to secure complete adherence to the present standard designs similarly hinder progress in adapting car design to the new elements?

The most persuasive reason set forth by the Car Construction Committee for strict adherence to its proposed standard designs is that such adherence is essential to the attainment of a minimum first cost. In 1932 the committee was of the opinion that this objective could not be fully realized unless standard inside dimensions are adhered to. Only about 24½ per cent of the box and hopper cars ordered between April 1, 1936, and June 7, 1937, adhere strictly to the A.A.R. designs. Hence, there has been little opportunity to realize the potential reductions in cost suggested by the committee at the time the box-car design was proposed and there is little evidence to indicate the probability that any marked advantages in this respect will ever be attained.

The realizable value of the standard designs undoubtedly lies in the excellence of their basic elements rather than in the designs as a whole. Measured by this standard, they have undoubtedly been highly beneficial to American railroads.

As progress is made in the adaptation of the new elements, some of these details are bound to become obsolete. This raises a second question.

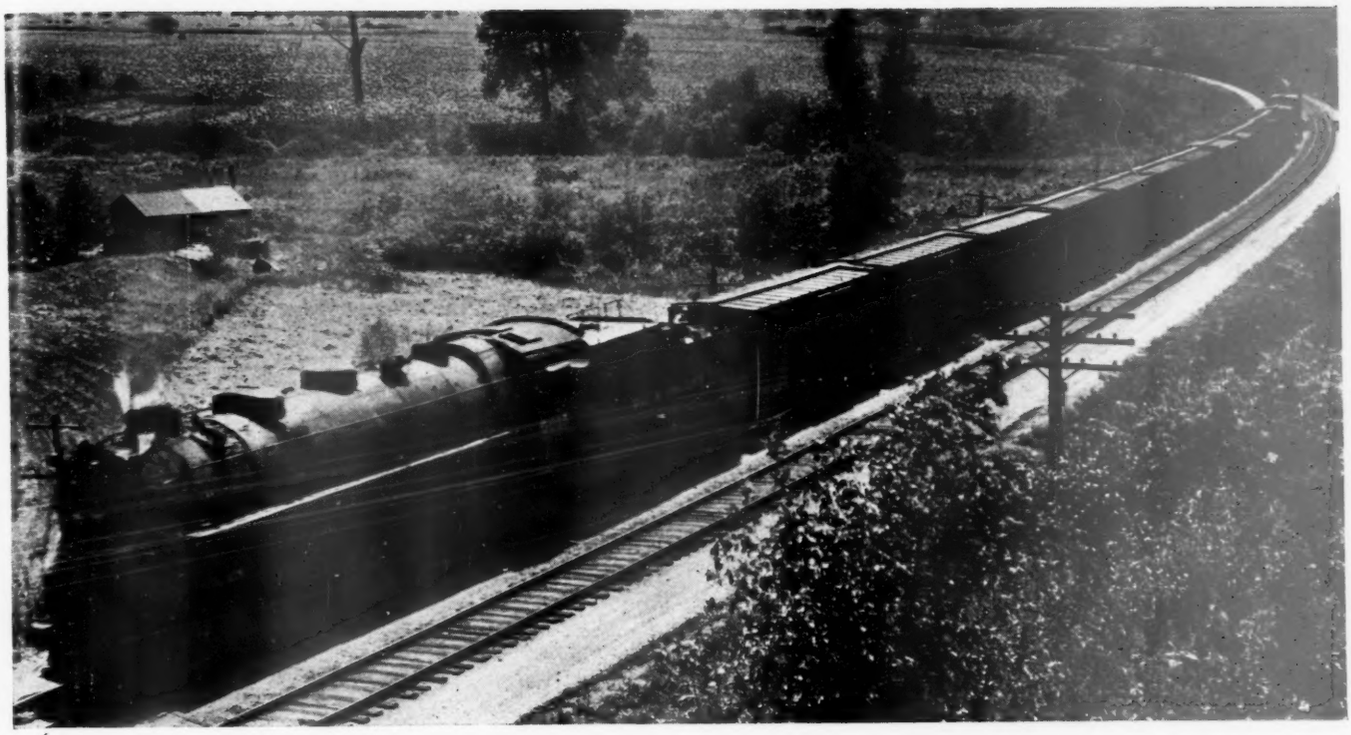
Why cannot the major benefits of the design program of the Car Construction Committee be fully attained by adopting further designs as recommended practice rather than standard? The term "standard design" implies and, in fact, leads to a lack of adequate recognition of progress in the art, particularly at a time when important new deviations from present general construction practice are rapidly establishing their merits. The term "recommended practice" implies less insistence on complete adherence and is, indeed, more nearly in keeping with the actual situation today than the term "standard design," because adherence is at present much more largely to elements of the design than to the design as a whole. If discontinuing a program for the development of standard designs in favor of a program for formulating recommended practice seems not to justify the effort at present being expended by the railroads and the car builders, perhaps some of this energy might be diverted with profit to a study of the adaptation and modification of essential standard details to fit the new elements, in a measure thereby guiding and perhaps expediting the progress to which the new steels and fabrication by welding are bound to lead.

The Railroads and the Fans

There is scarcely a traveler, railroad man, shipper or tourist agent who will not go on record to the effect that the promise, first visible but a year or two ago, of a mighty railroad revival in the land is now actually in process of being fulfilled. It has a score of manifestations: car loadings and increased passenger traffic, orders for new locomotives, rolling stock and track equipment, a considerable stock market concern for rails and rail replacement securities, the appearance of new types of trains, the cutting of schedules, the increased railroad advertising in the public prints and, most of all, a renaissance of public interest in railroad transportation. The man on the street, the casual traveler, the commercial voyager, even the motorist, is once more conscious of the legend of rail transportation, of its rôle in the American saga and of the compelling fascination of steam and steel expressed in terms of Pacific locomotives, the endless irons of the right of way and the luxury of the latest thing in stainless steel sleepers and club cars. . . .

That this good will is a tangible asset has been demonstrated, for example, by the activities of such organizations as the Railroad Enthusiasts and the National Railway Historical Society. That its potentialities are vast is indicated by the statement in an article in the current issue of "Esquire" devoted to railroad amateurs, that a single magazine of the fan, or, strictly speaking, non-technical, type has a circulation in excess of 350,000 and barely scratches the surface of potential subscribers. . . . One such junket, where the road executives had doubted if there would be sufficient interest to fill an extra car on a regular scheduled train, required for accommodations two entire private trains each consisting of seven coaches, a Pullman observation car, two diners and two locomotives! Fans are factors in today's upswing in rails, and don't let the roads themselves forget it.

—From the New York Herald-Tribune



Hundreds of Trains Like This One Took the Bumper Crop to Market

Railways Establish All-Time Records in Handling Wheat

Bumper crop moved without car shortages or unloading grain on the ground

ON July 10, the railways moved into Kansas City 1,956 cars containing more than 3,000,000 bushels of wheat. During the week ending July 10, the railways brought into this single terminal 9,009 cars, loaded with more than 14,000,000 bushels of wheat, having a value of $16,000,000. In the month of July, 30,041 cars of wheat arrived in Kansas City. In all of these periods the railways established new records for handling the winter wheat crop of Kansas, Oklahoma and Texas. The best previous day's record was established on July 11, 1931, when 1,487 cars were delivered at this terminal. Likewise, the highest weekly record of 8,749 cars was made in 1931. Similar records were established at other large interior markets, including Wichita, Kan., Hutchinson and Salina; Ft. Worth, Tex., and Amarillo; and Enid, Okla.

Railroad Records

Each of the principal railroads participating in this movement also established all-time records this year. On the Chicago, Rock Island & Pacific, for example, 8,295 cars of wheat were loaded in June, an all-time record, as compared with 3,422 cars loaded in June, 1936, or an increase of 142 per cent. So far this season the Rock Island has moved more than 20,000 cars of wheat from its local stations to the central grain markets. The effect of this heavy movement on its system operating statistics is indicated by the increase of 10.6 per cent in gross tons moved in June, 1937, as compared with June, 1936; and increases of 4.6 per cent in net ton-miles, and of 9.1 per cent in net tons per train.

The heavy movement at the interior markets is indicated further by the fact that, on July 7, the Atchison, Topeka & Santa Fe alone handled 1,170 cars of wheat into Wichita, as against a previous all-time high figure of 707 cars. The Santa Fe likewise handled 448 cars of wheat into Enid on July 8, and 330 cars into Salina on July 9, which movements compare with previous high figures of 308 and 185 cars, respectively. As an example of what happened at hundreds of country stations throughout the wheat belt, on one day the Santa Fe loaded 35 cars of wheat at Talmadge, Kan., a village of 240 inhabitants on its Strong City branch. This same small station loaded 134 cars in the six days between June 28 and July 3, inclusive. Loadings at Talmadge were duplicated at many other points, and were made possible by the switching of such stations two or three times a day, since the elevator tracks usually hold only eight to ten cars.

Such heavy local loading resulted in increased train

movements of from 400 to 600 per cent on many branch lines and on some main lines. What this meant in increased forces is indicated by the figures for the division on which Talmadge is situated. In addition to recalling the entire extra list of train and engine men, 7 trainmen and 48 yard and road firemen cut off in a former force reduction were recalled to service, and 21 new trainmen, 42 yard and switch firemen, and 76 switchmen were employed in addition. Besides the extra list, and counting the clerks, telegraph operators and other employees called into service, this meant the hiring of 268 new men on this one division.

On its Western lines (the lines west of Newton, Kan., to Albuquerque, N. M.) the Santa Fe loaded 25,220 cars of wheat up to and including July 30, as compared with 15,069 cars last year, one division alone loading 9,952 cars. A significant and encouraging feature was the loading of 5,681 cars this year on the Plains division, which traverses the center of last year's drought and dust storm area, and serves the territory that was hardest hit in previous years.

The Missouri Pacific was another large wheat carrier, handling 15,323 cars in July this year, as compared with the previous high month in its entire history of 12,683 cars. Like the other railroads involved, it created new records in wheat handling, without car shortages, and the few cases where wheat was unloaded on the ground came about when the elevators were unable to handle the grain as fast as it was brought in from the fields.

Clyde M. Reed, who, as chairman of the Missouri-Kansas Shippers Advisory Board, made frequent trips to focal points in the wheat territory to see that the elevators operated at maximum capacity, and co-operated closely with the railways, the farmers and the elevators in getting the crop moved, commended the railways highly for their performance, stating that they "did the swellest job of moving the southwest portion of the winter wheat crop this year that I have ever seen done. With a car supply that I feared might be inadequate, a record-breaking movement was made with a minimum of delay and congestion. I recognize a good job of moving winter wheat when I see it, and I certainly saw it this year."

This Year's Crop

The winter wheat movement this year had several unusual features, apart from its great size. A handicap to the railways was the fact that the harvesting of southern wheat was delayed because of climatic conditions. The result was that, instead of the harvest moving progressively northward, and enabling a considerable portion of the Oklahoma and Texas crop to be moved before the Kansas wheat was harvested, it all came out at once this year, the peak movement being concentrated largely in the last ten days of June and the first ten days of July. For the first time since 1931, also, wheat was exported through the Gulf ports, which added to the car problem, since a 20-day average turn-around is required on cars going to the Gulf ports, as compared with 10 days to Kansas City, and five days to the interior elevators.

Further, this year's car supply was below normal. The Rock Island, for example, was able to assemble only 6,000 cars for loading in the wheat territory at the beginning of the season, instead of the 9,000 or 10,000 normally available. Similarly, the Santa Fe had only been able to collect 10,500 cars for wheat loading, instead of the customary 14,000 to 15,000 cars. The other wheat-handling roads were on similarly short rations, a fact which these railroads attributed to the average per diem plan, under which they experienced great difficulty in getting cars of their ownership and suitable for grain loading back home.

To offset these handicaps, certain other phases of this year's harvest aided the railroads. Wet weather over a large area made it impossible to get into the fields with combines, which thresh as well as cut the grain. This made necessary the harvesting of more wheat by the binder method than during any year since the combines were first introduced. Under the binder method of harvesting, the threshing, and hence the loading, take place gradually. Prior to the advent of the combine, the loading was spread over the months of July and August, while in more recent years, as previously stated, it has been concentrated in a few weeks. The effect of the combine is illustrated by the fact that, in July and August, 1920, when the binder was generally employed, the number of cars received in Kansas City were only 17 per cent of the arrivals for the entire year, whereas, for the last several years, 45 to 50 per cent of the crop has moved into Kansas City in those months.

Another favorable circumstance this year was the gradual and steady rise in the price of wheat from the time that harvesting started, which curbed the tendency to dump everything on the railways at once. Finally, a much greater percentage of the wheat than is usual moved to the interior elevators, thus permitting a faster turn-around of grain cars than if the heavy movement to Kansas City had begun at once, as is usually the case.

Despite these mitigating circumstances, however, the handling of this year's crop of winter wheat presented a major transportation problem and one which required

Trucks Waiting Their Turn to Load in a Country Elevator for Rail Movement

maximum efforts on the part of railway officers and employees to avoid a blockade.

A major factor in the handling of the wheat was the preparation for the movement. This began many months before the actual harvest; crop reports and local conditions were studied throughout the year to supply advance information as to the needs in the way of cars, locomotives, man-power, etc. As it happens, the wheat movement coincides with a heavy transcontinental perishable movement, as well as general traffic, both of which were heavier this year than for some time past. It was essential, of course, that prompt handling of such traffic be continued during the wheat movement.

Every effort was brought to bear to have all locomotives in serviceable condition. Locomotives that came out of the shops in the weeks preceding the peak period were not returned to their regular assignments unless the need was imperative, but were assigned to the wheat divisions, instead. For example, the Oklahoma division of the Rock Island borrowed 12 locomotives from other divisions during the rush. On the Rock Island, also, 27 extra cabooses were sent to the wheat divisions, six of these being converted coaches. The wheat-handling divisions of the Santa Fe not only had every possible locomotive out of the shops and in service, but borrowed 23 locomotives from other divisions not directly involved in the wheat movement. It was necessary to increase the staff at the small enginehouses in the wheat territory materially, to give the locomotives prompt and efficient enginehouse attention, and the men for this purpose were sent from the main shops after the general repair program immediately prior to the wheat rush was completed there.

Heavy maintenance work, such as rail laying and ballasting, as well as construction jobs that would interfere with train movement, were suspended until after the wheat had moved. A separate department was set up by each of the railroads to look after the provision of grain doors. Conferences were held between the railway officers and the local grain committees, consisting of shippers and receivers concerned with wheat, so that anything that might delay the flood of grain might be ironed out in advance, so far as was possible. Conferences were also held with the various state grain boards to see that cars were not unduly delayed because of grain inspection. Yards, terminals and sidings that were concerned in the wheat movement were cleared, so far as possible, of general traffic so that they might be available for wheat, and all details concerned with the smooth and efficient grain movement were worked out in advance.

How well this was accomplished this year is indicated by the fact that, at Wichita, for example, on several days during the rush, loaded cars were received, spotted at the elevators, unloaded, switched into trains of empties, and moved out of the terminal with an average detention for the entire turn-around of only nine hours. At Salina and Enid, there were days during the peak period when the average terminal detention was only six to seven hours.

Car Handling

Each of the railroads built up as large a supply of empties suitable for grain loading as was possible, all carefully inspected and re-coopered. Repair programs on all such cars were rushed through so that the cars would be available at the beginning of the season. As many as possible of these cars were parked on the sidings serving the local elevators where the loading would begin, while the remainder were stored in yards close to the loading points, from which they might be taken out quickly and spotted at the elevators as soon as track room was made available by loading. Immediately prior to the shipping season, car inspectors equipped with "dope" and brasses were sent out to make journal box inspections, so as to avoid hot box delay to loaded trains.

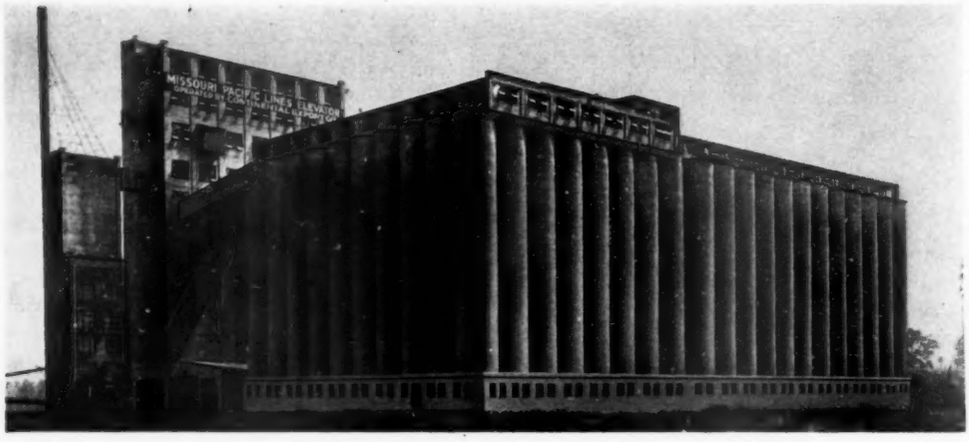
The various superintendents of transportation had complete reports of the location of all cars and when the movement began they were kept advised by wire of the number and location of the empties available and of the loading requirements. They, and the other operating officers concerned in the movement on all the railways, kept in close touch with each other and co-operated closely during the rush, helping each other out where necessary. In general, the handling of the wheat rush supplied an excellent example of the results possible by co-operation between the railways.

This was illustrated at Wichita this year. The four grain railroads serving this terminal pooled their terminal facilities under the name of the Wichita Terminal Association, which, while not a separate company and owning no facilities, did have a separate terminal-operating organization using the terminal facilities of all the railways as the occasion required, and giving all of them equal treatment in the placing of cars at elevators and the return of empties.

Field Operations

In gathering loads and distributing empties, the railways worked on the zoning plan. Swing runs were established between loading stations and concentration

Harvesting Winter Wheat in Kansas



One of the Elevators Where the Grain Is Stored

points. These runs were short, as, in most instances, the country elevators required two or three switches a day to take care of their loading needs. Therefore, the crews shuttled back and forth, picking up loads and distributing empties.

As soon as sufficient loads were assembled at a concentration point, they were grouped in trains and run to the market, where they were spotted at the elevators and unloaded as quickly as possible. At these points, as soon as sufficient empties were made available, they were made up into trains and hurried back, under fast manifest schedules, and, of course, with no regard for tonnage, to the concentration points for re-distribution to the loading elevators.

The wheat rush this year required the recalling of the entire extra list, and many new men were also hired. In all, well over a thousand men were recruited by the railways concerned in this year's wheat movement.

New train and enginemen were, of course, always accompanied by a least two experienced members of the crew. Nevertheless, intensive supervision was required. Trainmasters, assistant trainmasters and transportation inspectors were assigned to the "nerve centers" of the movement. Additional supervision was provided by the promotion of several men to the position of assistant yardmasters for the duration of the peak movement. Superintendents and assistant superintendents were constantly on the move from place to place on their divisions during the season. General managers, assistant general managers and general superintendents spent much time at the larger terminals, although they, too, received constant reports from the field. Operating vice-presidents kept closely in touch with the entire picture and were usually on the ground for at least part of the movement. In fact, during the current rush, an operating vice-president relieved the rest of the supervisory staff for other duties by taking charge of a derailment that threatened to have a serious effect on the movement. During the wheat rush, the crews were worked as long as was necessary within the 16-hour law, regardless of overtime, but the supervisory offices worked straight through, night and day, getting what little sleep they could at infrequent intervals.

More Wheat to Come

The successful handling of the peak movement of winter wheat has not completed the railways' grain handling job. While the peak movement provided the most intense and dramatic picture, it did not by any means exhaust the entire crop. Some 45 per cent of it is still to be moved before the first of the year.

* * * *

A Reo Speed-Wagon Substituting for a Locomotive in Switching Service

Would a Building Boom Bring Railroad Prosperity?

Restoration of building activity to normal level seen as key to profitable railroad operation

By M. D. Morehouse

Jas. H. Oliphant & Co., Chicago

With indices of business activity seeming to indicate that "normal" production volume has been restored—much pessimistic comment has developed because railroad traffic and general employment have not returned to similar "normal" levels. Of railroad traffic it has been said that the lag in recovery lies in business permanently lost to competing agencies of transportation. For continued unemployment, improved technique is blamed; and a shorter week is proposed as necessary to spread the available work and prevent unemployment from remaining a chronic disease.

This article indicates, on the contrary, that the failure of employment and railroad traffic to recover fully is due to the fact that revival, while more than "normal" in some lines, is a good deal less than normal in a great industry—namely building construction—which usually contributes heavily both to employment and railroad traffic. If this industry should experience genuine revival, quite likely we might not have any unemployment, or a dearth of railroad traffic either.—Editor.

NOT so many years ago the statement was made that railroad securities would never again offer an attractive medium for speculation or investment. Today one hears on every side that all the railroads need to reattain their former speculative and investment standing is more tonnage. Business, with the exception of building construction, however, is relatively good. The general level of industrial activity is now within striking distance of 1929 levels, the Standard Statistics Composite Index of Industrial Activity for May, 1937, being within 5.5 per cent of May, 1929, and within 1.9 per cent of the monthly average for that year.

The question, then, is whether or not this reversal of opinion regarding the investment status of railroad securities is justified by existing conditions and, if so, where, in view of the high level of business activity, great opportunity for expanding tonnage lies. Is it possible that a recovery of the building industry could solve the railroads' problem? There is every indication that such is the case.

"Industrial Activity" Normal, Railroad Traffic Lags

Tonnage figures and operating revenues clearly indicate the truth of the statement that, with increasing tonnage, the railroads of the country are beginning to show a return to their former satisfactory earning power. Furthermore, the economies which were forced upon the railroads during the depression years indicate that even more satisfactory net might be achieved.

In 1936 total operating revenues were 68.4 per cent, while net operating income amounted to 68.5 per cent of the 1924 level. Indicative, however, of the great leverage factor of railroad capitalization, net after charges in 1936 amounted to only 26.6 per cent. On the other hand, tonnage of carload traffic in 1936 stood at 80 per cent and l.c.l. traffic at 44.5 per cent of the 1924 level. The greater drop in total revenues can be largely accounted for by the fact that freight revenue per ton-mile in 1936 was only 0.975 cent as against 1.122 cents in 1924. If, for the sake of argument, we assume that the same relationship were maintained, a return to the 1924

Table I—Selected Statistics Class I Railroads 1924-36 and Monthly Average Standard Statistics Composite Index of Industrial Activity

	Total Operating Revenue	Net Operating Income	Net Income	Total No. of tons of Carload Traffic (In 1000 tons)	No. tons L.C.L. Traffic (In 1000 tons)	Standard Statistics Index of Industrial Activity	Freight Revenue per ton mile cents
1924	$5,921,490,100	$973,837,202	$562,302,676	2,103,700	68,077	87.1	1.116
1925	6,122,509,856	1,121,076,341	700,897,595	2,237,668	68,342	95.7	1.097
1926	6,382,939,546	1,213,089,966	809,262,269	2,384,890	68,297	100.0	1.081
1927	6,136,300,270	1,067,985,495	672,899,809	2,285,419	65,159	97.2	1.080
1928	6,111,735,511	1,172,864,100	786,823,584	2,298,362	63,260	101.0	1.081
1929	6,279,520,544	1,251,697,938	896,806,611	2,389,171	62,430	108.1	1.076
1930	5,281,196,870	868,878,773	523,907,472	2,011,767	51,316	86.2	1.063
1931	4,188,343,244	525,627,852	134,761,911	1,564,309	40,725	70.2	1.051
1932	3,126,760,154	326,298,008*	139,203,821	1,139,832	28,457	54.8	1.046
1933	3,095,403,904	474,295,613*	5,862,836	1,231,544	27,279	61.3	0.999
1934	3,271,566,822	462,652,379*	16,887,078	1,342,484	27,249	63.7	.978
1935	3,451,929,411	499,819,118	7,539,127	1,400,079	26,964	72.6	.988
1936	4,052,734,148	667,257,204	150,000,000	1,682,674	30,299	86.8	.975

* Deficit.

level of tonnage would mean operating revenues of somewhat over 5 billion dollars, or about the 1930 rate, in which year Class I roads reported net after charges of $523,907,472. In Table I total operating revenues, net operating income, net income after charges, the total number of tons of carload traffic, the number of tons of l.c.l. traffic of Class I railroads are given, together with Standard Statistics Composite Index of Industrial Activity, and freight revenue per ton-mile from 1924 through 1936.

Table II.—Standard Statistics Indices of Industrial Activity

	Monthly Average			
	1924	1929	1932	1936
Composite	87.1	108.1	54.8	86.8
Capital Goods	...	106.6	39.6	74.9
Consumer Goods	...	110.3	76.7	105.8
Steel Ingot	78.3	115.8	28.2	100.3
Pig Iron	79.5	108.3	22.2	78.6
Refined Lead	...	98.2	39.0	59.0
Zinc	83.7	98.8	33.3	83.4
Tin	82.0	114.0	46.5	94.4
Bituminous Coal	84.4	92.9	53.6	75.1
Cotton Consumption	82.2	105.3	74.6	106.0
Crude Petroleum	92.4	130.8	101.3	142.8
Automobiles	84.2	121.2	29.6	94.5
Building Contracts Awarded Area	83.4	89.6	17.5	45.6
Lumber	99.0	92.8	25.0	58.7
Cement	90.5	103.8	46.7	66.5

Does Index Reflect Traffic Possibilities?

The direct relationship between railroad tonnage and the various composite indices of industrial activity is well known. In 1929 tonnage had risen to 112.9 per cent of its 1924 level, while the index of industrial activity stood at 124.1 per cent of the former level. In 1932 the index of industrial activity fell to 62.92 per cent of its 1924 level, while railroad tonnage stood at 53.79 per cent. In 1936, however, industrial activity was at 99.66 per cent with tonnage at 78.87 per cent of the 1924 level. *Does the explanation of the failure of tonnage to rise at a corresponding rate to the index lie within the index or with the railroads?*

A comparison of the monthly average for 1936, 1932, 1929 and 1924 of some of the more important items entering into this index which would be likely to affect carloadings is given in Table II. With the exception of Building Construction, Lumber and Cement, the monthly average for 1936 was either above or only slightly below the 1924 average and thus far in 1937 have been above the former level. The three seriously depressed elements of the Index are thus:

	Index No.	Per cent of 1924
Building Construction	45.6	54.68
Lumber	58.7	59.29
Cement	66.5	73.48

All of these are industries which enter into construction and it seems conclusive that it is to a building boom that we must look for a continued material expansion in the composite index.

Table III.—Tonnage and Revenues Derived From Selected Items of Freight, and Percentage of Total for Class I Railroads

	Construction Tonnage (In 1000) tons)	Per cent of Total	Construction Revenue (In $1,000)	Per cent of Total
1924	457,876	21.08		
1925	478,113	20.73		
1926	486,330	19.82		
1927	476,442	20.27		
1928	418.299	17.71	$595,011	12.32
1929	400,606	16.38	571,105	11.50
1930	324,351	15.72	436,796	10.38
1931	231,954	14.45	308,285	9.18
1932	133,528	11.43	190,197	7.51
1933	123,183	9.78	183,273	7.11
1934	139,683	10.20	194,776	7.13
1935	156,265	11.02	233,571	8.09
1936	211,301	12.34	319,676	9.33

Importance of Building to Railroad Tonnage

Since it thus seems obvious that the building industry is the most logical place to look for an increase in the composite index, and since the direct relationship between this index and railroad tonnage has been demonstrated, the question arises, first, as to how important this classification is to total tonnage, second, whether or not it is possible to demonstrate such importance if it exists, and third, what would be the result of a revival in building construction.

From the Interstate Commerce Commission Freight Commodity Statistics the following classifications of freight were selected as being those classes of freight which enter almost entirely into construction activity: Clay, gravel, sand, stone, asphalt, logs, posts, poles, lumber and timber, cement, brick, artificial stone, lime, plaster, sewer pipe and drain tile. As prior to 1928 the freight classifications included cordwood with logs, and box shooks, staves and headings with lumber and timber, an attempt has been made to adjust the earlier figures to remove these items from consideration. Also, due to the method of reporting, it was impossible to include on a comparative basis such important building items as roofing materials, paints and millwork, for which figures are only given in later years. The per cent of these items to total tonnage is given in Table III for the years 1924 through 1936. Only about 6 per cent of total steel tonnage enters into building construction, and since an adequate breakdown was not available, it was found impossible to include this class of freight.

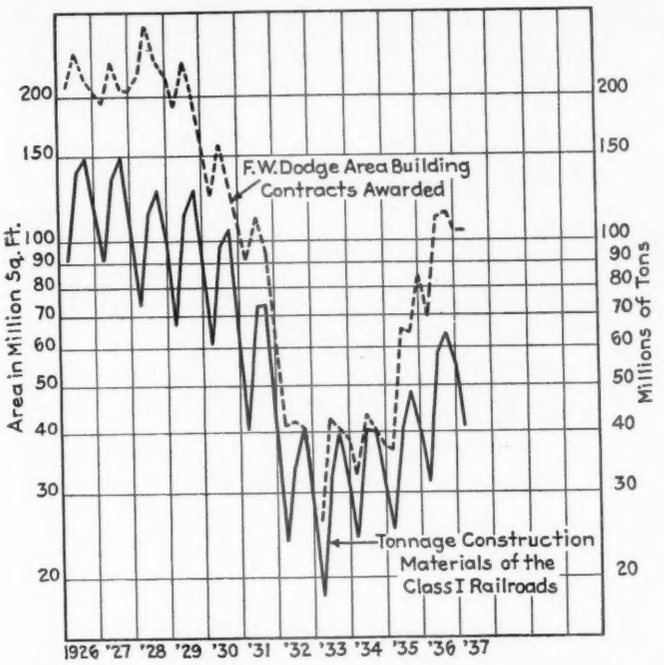
Table IV.—Percentage Sand, Gravel, Stone and Cement Tonnage of Total Selected Construction Tonnage

1924	51.00%	1928	51.30%	1932	60.93%
1925	51.56	1929	50.95	1933	53.10
1926	53.74	1930	57.81	1934	63.53
1927	55.93	1931	62.12	1935	50.44
				1936	51.12

The importance of the building industry is indicated by the fact that the selected items amounted to 21.08 per cent of total tonnage in 1924, to 12.32 per cent in 1936. While it is true that such items of heavy tonnage bring a relatively low return, if we include such items as building paper and millwork, we find that in the year 1936 they amounted to 9.3 per cent of the total freight revenues.

Over the 13-year period on the average sand, gravel, stone and cement accounted for 54 per cent of the total of such construction tonnage and 35 per cent of the revenue derived from this group. Road building was maintained at relatively high levels until 1933, which probably accounts for the fact that loadings of these items declined less than the total, thus causing the percentage to rise during the first three of the depression years, as is shown by the percentage figures given in Table IV.

In the chart selected items of construction tonnage have been placed on a quarterly basis from 1926 through the first quarter of 1937 along with the F. W. Dodge Area of Building Contracts Awarded. The close correlation between railroad tonnage and the F. W. Dodge figures demonstrates the relationship between railroad tonnage and the building industry which our original observations of the various factors making up the Composite Index of Industrial Activity led us to believe would appear. Road building was maintained at a rela-



Correlation of Building Contracts and Railroad Tonnage of Construction Materials

tively higher level than building construction, which probably accounts for the fact that tonnage tended to hold up above what would have been expected.

Building Recession Began in '28

We now know that there were many indications that by 1928 the building cycle had reached its peak and was beginning to recede. This, however, was not shown by the various building indices until 1929. It was evident locally, however, and experienced contractors and dealers in building materials were beginning to reduce inventories. In 1928, on the other hand, the movement of construction tonnage slackened appreciably in response to this gradual running off of inventories and lack of interest in new construction, giving a definite indication of what was to come. Although it is true that part of this slowing down can be attributed to diversion of traffic to trucks, the reduction in actual movement is undoubtedly far more important and indicates the extreme sensitiveness of these figures to the building cycle.

During the early 'Twenties truck competition started and by 1929 a major percentage of the l.c.l. traffic had been captured by trucks. Due to the low level of building activity in recent years and the desire on the part of dealers in building materials to maintain the smallest possible stocks, the proportion of l.c.l. shipments to the total movement has increased tremendously and consequently has accentuated the diversion of tonnage to trucks. Comparison of the U. S. Treasury Index of Shipments of Construction Materials with the figures for railroad construction tonnage clearly indicates this trend. As the level of building activity increases, however, it is expected that this tendency towards l.c.l. shipments may be reversed and a good part of this traffic may return to the railroads.

In 1924 we had started on the boom in building construction which reached its peak in 1928; and it is believed that 1924 is a very fair year to use as a basis of comparison for what could happen to railroad traffic levels should we return to the level of building activity in that year. In 1924 our selected items of construction tonnage amounted to 457,876,000 tons and in 1936 to 211,001,000 tons or a decrease of 246,875,000 tons. If we add this difference to the total tonnage carried by Class I railroads in 1936 an improvement of 14.4 per cent in tonnage and 11 per cent in freight revenues would be realized, or about $324,000,000. If one-third of this gain could have been carried through to net, the gain would have been nearly $125,000,000, or an increase of 83 per cent over the estimate for the year. In 1935 all roads would have showed an improvement of 21 per cent in gross tonnage carried and 15 per cent in freight revenues.

Roads Will Not Benefit Equally

It is, of course, obvious that the gain to be realized through such tonnage will vary tremendously for the different railroads. It was found that the opportunity for greatest expansion lies in the roads in the southern district. Table V shows the per cent of total tonnage of the selected items by districts in 1924 and for the United States in 1924, 1926 and 1936. These figures have not been adjusted to exclude wood for fuel and box materials, which accounts for the slight discrepancy between these figures and those in Table III.

The opportunity for gain over 1935 and 1936 tonnage, assuming a return to 1924 levels, of certain individual railroads, has also been worked out by this writer and can be supplied to those interested. Obviously the demonstrated opportunity for increased traffic through a building boom is only one of many factors which must be weighed in estimating the future investment and speculative merit of railroad securities. Such factors as financial condition, operating statistics, other traffic trends and physical condition are of equal or greater importance. The movement of building materials certainly, however, is an element of extreme importance in the broad railroad picture, and in a large measure provides the answer to the search for further improvement.

Table V.—Percentage of Various Classifications of Tonnage of Total Tonnage Class I Railroads

	U. S. and by districts for 1924						
	U. S.	Eastern	Pocahontas Region	Southern Region	Western	1926	1936
Gravel, sand and stone.	8.67	8.01	4.24	11.57	9.37	8.70	4.52
Asphalt	.26	.23	.07	.53	.24	.28	.43
Logs, posts and poles.	2.43	.51	.66	3.74	5.63	2.18	1.41
Lumber and timber ...	6.06	3.63	3.88	13.46	7.62	5.07	3.36
Cement	2.08	2.27	.75	1.94	2.05	1.95	1.80
Brick and Art. stone	1.40	1.55	.92	1.80	1.05	1.43	.74
Lime and plaster ...	.56	.64	.34	.48	.51	.55	.38
Sewer pipe and drain tile	.19	.20	.07	.23	.18	.17	.11
	21.65	17.04	10.93	33.75	26.65	20.33	12.75

A SPECIAL ROUND TRIP FARE, equal to 75 per cent of the regular one-way coach fare, has been placed on sale week-ends for the period extending from August 1 to October 31, by the Chicago, Rock Island & Pacific, the Fort Worth & Denver City, the Missouri-Kansas-Texas and the Atchison, Topeka & Santa Fe from designated points on these lines to Dallas, Tex., where the Pan American Exposition is being held. The return limit is placed at midnight Sundays.

The Office Building End of the New Motor Truck Terminal

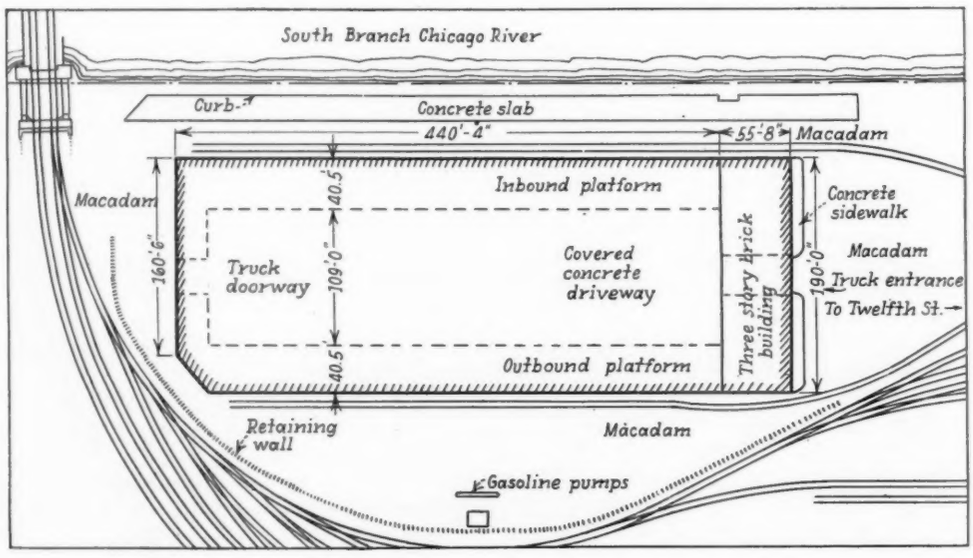
Railroad Builds Large Plant for Truck Operator

Baltimore & Ohio Chicago Terminal facility for Keeshin Motor Express affords tailboard space for 200 units

MAXIMUM efficiency in the handling of merchandise freight was the primary consideration which influenced the design of a motor-freight terminal which the Baltimore & Ohio Chicago terminal has constructed at Chicago for lease to the Keeshin Motor Express Company. Built at a cost of $300,000, the terminal provides tailboard space for 200 trucks or semi-trailers, together with track connections for handling carload business. Also embodied in the terminal is a three-story building which houses the executive and general offices, as well as divisional offices, of the Keeshin concern, which is one of the largest independent operators of motor trucks in the country. These facilities make it possible to bring together practically under one roof functions of the motor carrier that previously had been carried on at five rather widely-scattered locations throughout the city.

Location

The new terminal is located on the east bank of the Chicago river, immediately north of the point where the tracks of the B. & O. C. T. cross the river from the west before turning north to enter the Grand Central station.



General Plan of the Terminal

Thus the area in which the terminal is located is bounded on the west by the Chicago river and on the south and east by railroad tracks. Access to and from the street level is provided to the north where an existing ramp rises to the level of the viaduct which carries Twelfth street (an important east and west street) across the extensive railroad yards which are located in this vicinity.

The new terminal building is substantially rectangular in shape and has a width of 190 ft. and an overall length of 496 ft., the latter dimension being in a north and south direction or parallel with the river. At the north end of the building and occupying its full width for a depth of 55 ft. 8 in. is the three-story office building, while the freight-handling facilities are contained in the southern portion which is 440 ft. 4 in. long. In reality the office building and the freight house are separate structures, although they have communicating doors, footings that are common to both, and foundations which are continuous between them.

A View in the Offices

Details of Freight House

The freight-handling facilities consist of inbound and outbound platforms which extend along the west and east sides of the structure, respectively, and along the south end, the space between the platforms, which is 109 ft. wide, being covered and given over to use as a driveway. An arcade through the office building along the longitudinal center line of the freight house provides the main entrance and exit to the covered driveway although a second but less frequently used doorway for trucks is provided at the south end. Practically the entire length of both sides of each platform is available for tailboard space and additional space is provided along the platforms at the south end of the structure.

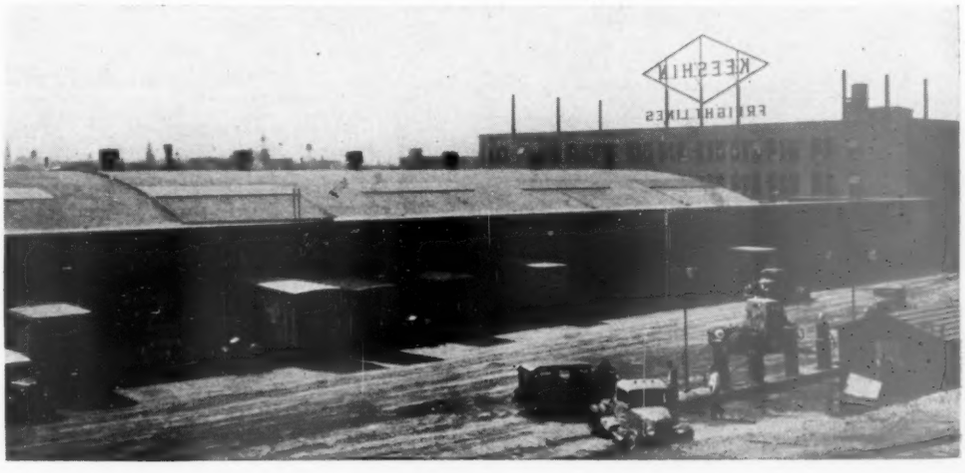
All platforms consist of 5-in. reinforced concrete slabs supported on fill material which is retained between reinforced concrete walls extending along both sides of each platform. They are all 40 ft. 6 in. wide except the short transverse lengths at the south end of the freight shed, which are 24 ft. 9 in. wide. A bumper, consisting of a 10-in. by 12-in. oak timber capped with a 10-in. channel, is provided along the edge of each platform at the floor level, being supported at intervals on short I-beams which are embedded in the concrete of the platform wall.

The driveway between the platforms is paved with an 8-in. reinforced concrete slab which is laid directly on the ground. Along a line 6 ft. from the edge of each platform this slab terminates in a concrete curb which serves as a wheel stop, the area between the curb and the platform wall being paved with a thin concrete slab at the level of the top of the curb. The driveway and all platforms are suitably crowned to provide for drainage.

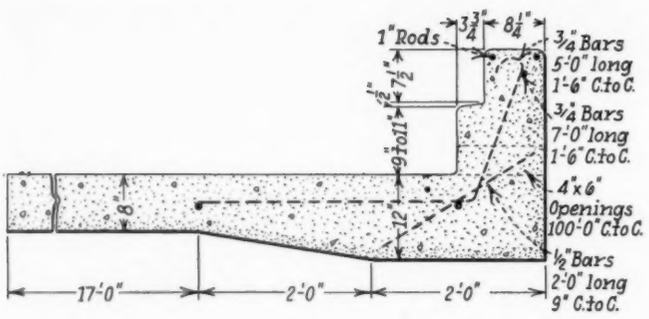
Bascule Bridge Connects Platform

To permit the free movement of merchandise between the inbound and outbound platforms without interfering with the rather infrequent use which is made of the entrance driveway that separates these platforms at the south end, a mechanically-operated hand-powered double-leaf bascule bridge was provided to span the two-lane opening. Of wood-truss construction with a timber floor, this bridge presents a truck-way width of 11 ft. When in the lowered position the spans are supported at their outer ends on a concrete center pier which is cast integrally with the footings of the columns supporting the roof structure. Each leaf spans a clear opening of 10 ft.

The roof structure of the freight house is of conventional design, the principal feature of interest being the fact that it has no intermediate supports in the driveway (109-ft. width) to interfere with the movement of trucks and trailers. Between the inner edges of the two platforms the roof is carried on I-beams which span between spaced 18 ft. apart, which have a maximum depth at the center of 11 ft. The trusses are supported at their ends on H columns carried on concrete footings which are cast integrally with the platform walls. Over the main platforms the roof is carried on I-beams which span between the columns mentioned above and another row of columns



Outside Tailboard Space Along the East or Outbound Side of the Terminal



Details of the Composite Pavement and Curb Construction

along the outside edge of each platform, these roof beams being cantilevered 10 ft. beyond the outer edge of the platform to serve as supports for a canopy. Also of flat construction is the roof over the platform at the south end and over each end of the driveway area for about the length of a bay. The roof of the entire freight shed is of frame construction and is covered with built-up composition roofing.

Metal ventilators, 30 in. in diameter, are provided in the roof along the longitudinal center line of the shed at intervals of 35 ft., and light is admitted to the driveway area by means of depressed-head single-pitch skylights, glazed with ¼-in. wire glass. These skylights are arranged in two lines, one on each side of the longitudinal center line of the shed, in such positions as to secure an even distribution of light over the driveway area. Each skylight is 9½ ft. wide and 35½ ft. long.

In addition to the usual expansion joints in the concrete of the platforms and driveways, a transverse expansion joint extending through the entire cross-section of the shed from roof to foundations was provided midway of the length of the shed. This joint was considered necessary in view of the length of the structure and the consequent possibility of substantial longitudinal movement taking place, particularly in the roof structure, with changes in temperature.

Overhead Doors Used

Throughout the length of the platforms, on both sides as well as at the rear of the structure, they are fitted on the exterior side with doors of the manually-operated overhead push-up type. Each door is divided into five horizontal panels, two of which are glazed with glass. Six-inch concrete-filled pipes with their lower ends embedded in the concrete of the platform floor protect the jambs of these doors from the impacts of platform trucks.

Overhead doors of the same type but operated by motors are provided in the entrance opening at the north end of the shed, while the opening at the south end is equipped with motor-operated over-head rolling doors. These doors are operated from the interior by push-button control involving the use of three buttons, one for raising, another for lowering and a third for stopping the door at any point while it is traveling in either direction. Above the door openings and at certain other points the exterior walls of the freight house are covered with corrugated iron.

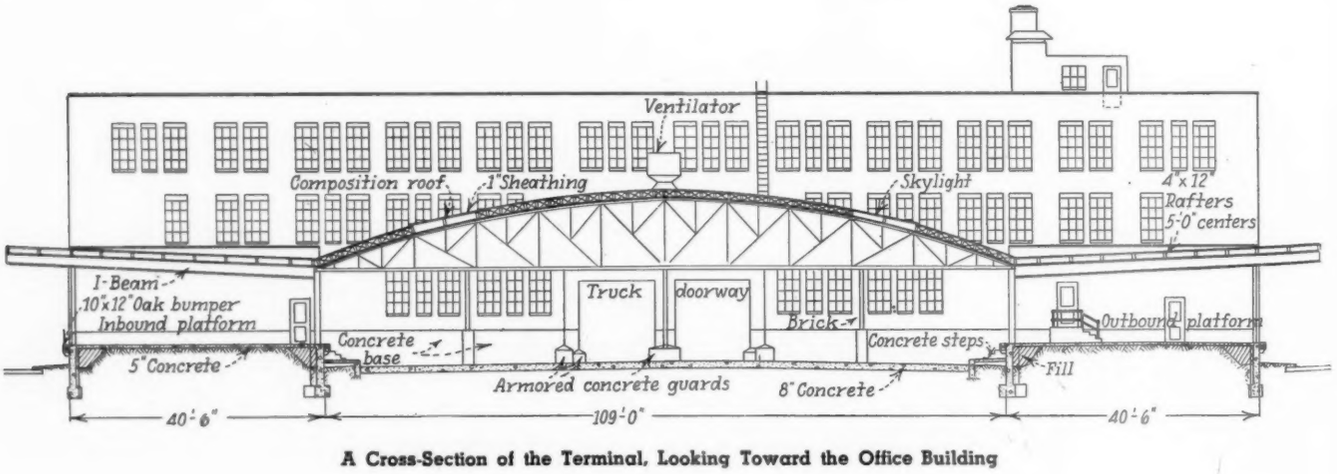
Compressed air outlets are provided at intervals of 27 ft. along each side of both platforms for inflating the tires of trucks, the air being piped from a compressor located in the boiler room in the basement of the office building. To permit the washing of trucks and trailers while they are spotted at the platform two water outlets, each with both hot and cold water, were also installed along the inside edge of each platform. Other facilities incorporated in the freight house include a platform scale on each platform and an overhead hand-operated hoist at the north end of the inbound platform for loading or unloading objects too heavy to be handled by hand.

Operation of Terminal

As measured by the unit cost of handling merchandise the operation of this terminal, which has been in service since about March 15, has been attended with a high degree of efficiency. For pick-up and delivery purposes the Keeshin Company has divided the Chicago metropolitan area into zones and to facilitate the consolidation of loads for the respective delivery zones the tailboard space of the inbound platform is sub-divided accordingly. In addition to its roadhaul business the Keeshin Company engages in local haulage and the inbound platform is also used for the consolidation for delivery to the respective zones of this local business.

When a truck arrives at the terminal with merchandise for both local delivery and for consignment to some outlying point it goes to the inbound platform for unloading before proceeding to the outbound platform. In some cases, particularly when the trucks carry only a small amount of outbound business, the entire load is removed on the inbound platform and that portion destined for some distant point is trucked over to the outbound platform via the bascule bridge.

The outbound side of the platform is divided into sections, in each of which trucks are loaded for a given route. Overhead in each section is hung a placard on which are printed the names of the points served by trucks loaded in that section. There are a total of about 700



A Cross-Section of the Terminal, Looking Toward the Office Building

such points. The name of the terminal point on the route is given in large letters at the top of the placard, with the names of intermediate points printed below in smaller type. Both sides of each of the platforms are used for both loading and unloading, although to a large extent the operations are confined to the inside tailboard space until the capacity of that space is reached, after which the outside space is brought into use. However, this is not a hard and fast rule. For handling carload business the terminal is served by two tracks which approach it from the north, one passing along each platform for its full length.

Driveway Around Terminal

The freight shed and office building are entirely surrounded by a driveway of varying width, which is surfaced with macadam. In the east driveway truck servicing facilities, including four gasoline pumps and a small shelter for the use of the attendants, have been provided.

On the west side, where only 59 ft. of space separate the building from the river, it was necessary to provide a curb along the river bank to serve as a truck stop. To minimize the quantity of material required in the construction of this curb, which is of reinforced concrete, it was built as an integral part of a 20-ft. roadway slab, so that the weight of a truck on the slab counteracts the overturning action that is brought about if the wheels should come in contact with the curb.

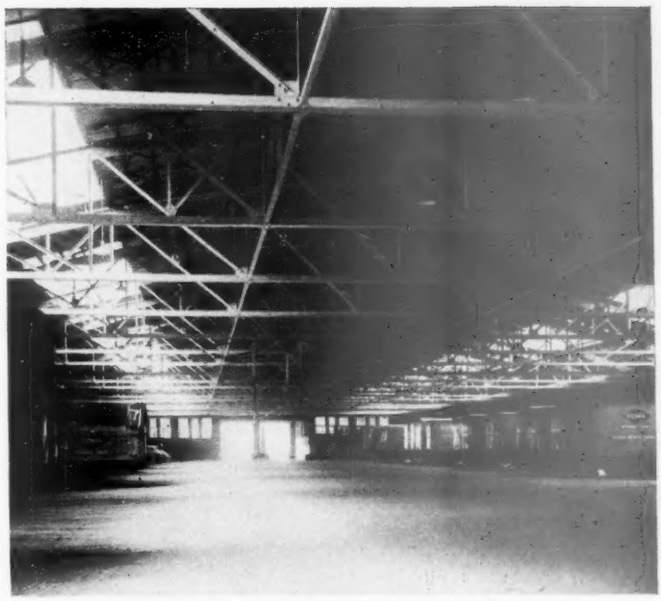
As shown on the accompanying drawing, this curb has a step or shelf on the driveway side which serves to help stop trucks. If the momentum of the truck is great enough, the wheels will mount the shelf, which is 9 to 11 in. above the level of the slab, causing a portion of the energy of the truck to be converted into a vertical or lifting movement so that when the wheels of the truck strike the face of the curb above the shelf it is with considerably less force than would otherwise be the case. Because it helps to stop trucks by causing them to lift themselves the stepped feature of the curb had an effect in reducing the required thickness of the curb.

Details of Office Building

The office building is of conventional design and construction with a brick and steel super-structure carried on concrete foundations. Moreover, since it is located at a point that is remote from the nearest traveled street (Twelfth street) it was not considered necessary to introduce esthetic features of design on the exterior, with the result that the structure is built along simple lines and has a rectangular facade.

To obtain sufficient height in the truck entrance without carrying it above the second floor level the first floor was raised 5½ ft. above the ground level, this feature also reducing the amount of excavation required for the basement that underlies that portion of the structure east of the truck entrance. No basement was provided under the west portion of the structure, the space between the foundation walks being filled to the first floor level. Since the first floor is divided into two independent parts by the arcade it was necessary to provide two entrance doors in the facade of the office building.

The arcade has two lanes, separated by a row of the building columns, each lane having a clear width of 10 ft. between the wheel guards and a height of 14 ft. in the plane of the building facade where the overhead doors are located. To obtain lanes of this width three of the transverse rows of supporting columns were arranged on 16-ft. 6-in. centers, which compares with a column spacing of 14 ft. 6 in. for the remainder of the length of the office building. Particular attention was given to the protection from impact of the building columns in the driveways (at both the north and south entrances) and of the building corners, this protection consisting of circular cast iron sections filled with concrete.



Within the Large Covered Driveway

The first floor of the office building on each side of the truck entrance is of concrete slab construction, while the second and third floors and the roof incorporate Keystone construction. Except in certain of the toilets, the floors are surfaced throughout with mastic tile, while the roof is covered with built-up composition roofing laid on a one-inch layer of insulating board. The building is heated by steam.

In addition to the boiler room the basement contains facilities for the convenience of the company's truck drivers and freight-house employees. These include a large locker room, a wash room, showers, and toilets. All space on the upper floors of the building is subdivided into offices, so arranged as to fulfill the particular needs of this company. A rear door in each portion of the office building at the first floor level allows access to the freight house.

Plans and specifications for this terminal were prepared by L. P. Kimball, engineer of buildings of the Baltimore & Ohio. Construction activities were carried out under the direction of L. G. Curtis, chief engineer of the Baltimore & Ohio Chicago Terminal. The Ellington-Miller Company, Chicago, was the general contractor.

It is the intention of the London & North Eastern (Great Britain) to add interest to railway journeys by erecting attractive signs along its right-of-way calling attention to places of objects of note along the route. The road recently erected a large sign on either side of its main line route at the England-Scotland border, about a mile north of Berwick-on-Tweed, indicating the actual borderline between the two countries. The sign, which is 14 ft. in width and 9 ft. high, has the wording "Across the Border" at the top in yellow lettering on a black background. On one side of this lettering is the thistle of Scotland, and other national emblems; on the other, the rose of England, with other symbols appropriate to that country.

Are R. R. Unions "Responsible"?

M. of W. union official defends "democracy" of organizations—We still have our doubts, and tell why

IN a rather extended communication, L. E. Keller, statistician of the Brotherhood of Maintenance of Way Employees, has taken strong and detailed exception to the leading editorial in our July 10 issue entitled "The Irresponsibility of Labor Unions." He asks space in the *Railway Age* to record his objections, and this we are glad to grant. However, nothing which he says in his communication leads us to retract anything we said in the editorial which he criticises. Appended at the end of Mr. Keller's letter, which we print below in full, will be found our reply to him, in which we set forth the reasons why we still believe that unions, including the railway unions, have a long way to go before they can be called truly responsible and democratic.

Mr. Keller's Letter

Reference is made to the leading editorial in *Railway Age* of July 10, 1937, under the title, "The Irresponsibility of Labor Unions." I desire to make a brief reply to certain questionable portions of this editorial. As a matter of fair play and in the interest of accuracy, it would appear desirable to have this reply given the same prominence as your editorial of July 10. However, all of this is a matter for your decision.

In commenting upon whether or not employers should make agreements or contracts with employees you seem to question this "as long as all labor unions are as irresponsible as they are now." With your knowledge of the responsibility of the standard railway labor organizations it is difficult to understand how you could make a statement as broad as that. I feel perfectly safe in saying that J. J. Pelley, president of the Association of American Railroads, with whom we have dealt, that the executive committee of the Association of American Railroads, which is composed of Mr. Pelley and six outstanding railroad presidents, and that other executive heads of the railroads, such as Daniel Willard of the Baltimore & Ohio, to mention but one, would not concur in your inference that railroad labor unions are irresponsible. I believe you know this to be the case.

Your editorial continues, "On the other hand, there are many that can be said to be responsible in the sense that they can be relied upon to carry out their agreements. This is notably true of the railway labor unions. Their leaders try constantly to get their agreements with the railways interpreted as favorably as possible to their members; but it is *rarely* there is any complaint of the railway unions violating their contracts."

Unions Abide by Their Contracts

This statement, is, of course, a left hand qualification of your earlier inference, but it is by no means satisfactory. I have underscored the word, "rarely," and in this connection I desire to point out that the railway labor organization with which I am associated, namely the Brotherhood of Maintenance of Way Employees, is celebrating its golden jubilee this year, that I have been associated with this organization for approximately eighteen years, and that I do not know of one single instance where our organization has violated any contract into which it ever entered with any railroad. If you know of any such instance, I shall greatly appreciate your advising me of it. In like manner I have been closely associated with the other standard railway labor organizations during this period and I do not know of any instance in which any of the 21 standard railway labor unions has ever violated a contract into which it entered with the railways, nor do I know of any instance where they have sustained, encouraged or tolerated any such violation on the part of their individual members.

Your editorial continues with the statement that, "The present irresponsibility of labor unions begins with the election of their officers." You then make reference to John Lewis of the C. I. O. and state that he virtually elected himself. You then proceed with the amazing question, "Who knows whether the officers of any other labor union are the choice of its members?" Surely, Mr. Dunn, you cannot be unaware of the fact that the officers of the standard railway labor unions are elected in conventions by delegates chosen by and from the ranks of the individual members and, in some instances, I believe they are chosen by a referendum vote of the members.

How Union Officers Are Elected

In correcting your statement may I briefly point out how the officers of my own organization are chosen? The method is very simple and democratic. We hold conventions each three years. Several months before the convention period credentials are sent to each of our local lodges in the United States and Canada and there are about 1,250 of these local lodges. The individual members of such locals elect delegates and alternates of their own choosing. They have ample time to give consideration to those for whom they desire to vote as officers, to consider any revisions in the grand lodge constitution and by-laws which they may desire to advocate and to advise their delegates along any and all other lines. On the date prescribed for the convention these delegates assemble and become the supreme body, the supreme source of power within the organization. They nominate, vote for and elect whom they please by majority action. Thereafter, between conventions, they may remove these officers by referendum and recall, the provisions for which are adopted by these same delegates while in triennial convention. With your close association with the railroad industry it is difficult to understand how you could be unaware of these facts and it is amazing to find one of your editorials carrying the question, "Who knows whether the officers of any other labor union are the choice of its members?"

Your editorial then turns its attention to earnings and expenditures and to strikes. In this connection you state, in part, "National labor unions collect large

amounts in dues from their members." Your editorial continues later, "But the unions and their officers are subject to none of the requirements imposed on corporations and their officers regarding accounting and the reporting of receipts and expenditures. They are free to contribute whatever they choose to political funds."

Each three years our organization elects an executive board. They are separate and apart from the active grand lodge officers of our organization. To indicate part of their duties I quote from Section 8, Article IX, of the grand lodge constitution and by-laws adopted by the delegates to our triennial convention,

> The executive board shall have free access to the books and papers of all grand lodge officers and shall provide for the payment of the necessary expenses at grand lodge not otherwise provided for. The executive board shall furnish, through the secretary-treasurer, a copy of the audit report signed by the accountant and chairman of the executive board, to the president, secretary-treasurer and each member of the executive board, and upon request a copy of to be furnished to subordinate lodge secretary-treasurers which may be inspected by any member of the brotherhood in good standing.

The accountant here referred to, under the other provisions of our laws, is employed by the executive board after bids have been received from certified public accountants and audits are made each three months which are certified to by these responsible public accountants.

Strike Votes

In the matter of strikes your editorial states, "A national strike by a labor union may be a matter of national importance. But there is no law requiring that before a strike is ordered a majority of the members of a union shall vote for it, or for a secret ballot enabling each member to express himself without duress when a vote is taken, or for making sure that the vote is correctly counted and reported. In actual practice the decision whether there shall be a strike is usually made by union officers without there being available any evidence that they ever have been properly elected or that they have been authorized by the members of the union to order them to quit work." I have already pointed out the manner in which these officers are properly elected.

May I now refer you to our laws dealing with strike votes and again point out that these laws are adopted by the membership through their duly elected delegates. Our laws provide, in part:

> In the event of a general dispute, either regional or international, covering wages and working conditions, which cannot be settled through conference or arbitration, the grand lodge president, with the approval of the respective regional or international associations, shall cause ballots to be prepared, concisely stating the dispute involved, efforts made to adjust it and results obtained, and submit the question at issue to all the employees coming under the jurisdiction of this brotherhood on all railways affected by the dispute, for a referendum vote as to whether or not they will concertedly withdraw from the service of the companies until the said dispute is adjusted. If two-thirds of such members vote in favor of such withdrawal from the service, the grand lodge president, with the sanction of the respective regional or international associations and with the approval of the grand lodge officers, is authorized to order a suspension of work of all the employees coming under the jurisdiction of this brotherhood on all railroads affected in such dispute.

For your information, the regional and international associations here referred to are comprised of system division officers of the brotherhood and these officers, like the grand lodge officers, are elected by the membership. Could any procedure for determining a strike vote be more democratic? Could the rank and file of the members be afforded any better opportunity to determine whether or not they desire to strike? Could any strike action on the part of officers be any more dependent upon the free and independent wishes of the entire membership? Could any statement be more inaccurate than that part of your editorial which states that the decision to strike, "is usually made by union officers without there being made available any evidence that they have ever been properly elected or that they have been authorized by the members of the union to order them to quit work?"

While your editorial has direct reference to labor unions outside the railroad industry, it seems clearly apparent that your inferences apply as well to these railway labor organizations. Your editorial continues, "The railway labor unions are among the responsible—or least irresponsible—in the country, and yet almost every statement made above is as true of them as of other unions, whether old or new."

Do Employees Favor Government Ownership?

Your editorial then turns momentarily to what appears to be a pet theme of yours, namely government ownership of railroads, and you state that, "The leaders of all these unions but two committed them in favor of such a vitally important policy as government ownership and began using their funds to promote it without having ever consulted the members about it." A triennial convention of our brotherhood put our organization on record as favoring government ownership. I do not have the full record, but I do know that some other railroad labor organizations have taken the same action in their regular conventions. The plain fact of the matter is, Mr. Dunn, that the leaders of these standard railway labor organizations have done more to discourage government ownership advocacy on the part of their respective members than they have to encourage it. If government ownership of railroads comes about, as it may, it will result from necessity and not from choice.

Later on your editorial makes the amazing statement that, "labor unions are the least democratic and the most autocratic organizations in this country, and threaten . . . to become the greatest menace to democracy in both industry and government." I was under the impression that the greatest real menace to democracy and government that exists today is that of Communism. It is a real menace, not an imaginary one. The American labor movement is doing more to prevent the further growth and development of Communism than any other agency in America, with the exception of our religious institutions.

The wages existing on the railways today, and which run as low as 12½ cents, 17½ cents, 20 cents, etc., for track workers, constitute the best breeding grounds for Communism that I know of. You are, of course, aware of the fact that the federal co-ordinator of transportation recently pointed out that there were approximately 117,000 railroad men receiving basic wages of 35 cents an hour or less during the year 1935 and some of these were below 15 cents an hour. There have been no increases in basic wages since that time. In this we find the breeding grounds of Communism.

The 10 Per Cent Wage Agreement

It is also difficult to harmonize your editorial heretofore referred to with some of the earlier praise which you generously paid to these railroad labor organizations. May I take you back to the early part of 1932, when these same standard railroad labor organizations negotiated the 10 per cent deduction agreement with a committee of railroad presidents. According to your editorial of February 6, 1932, in which you dealt with this action, "There were involved 250,000 miles of railroads with an investment of over $26,000,000,000, at least 1,500,000 men, and approximately $200,000,000 in wages." At that time you stated that, "Unquestionably the negotiations were the most important that ever occurred between 'capital' and 'labor' in the history of the

world. They were of great importance not only to the railways and their employees, but to every other person in the United States. Indeed, they may be said without exaggeration to have been important to every person in the world." Clearly enough, you placed a high degree of importance upon these negotiations through which the employees agreed to donate 10 per cent of their wages to the railways in that depression period. Your editorial of February 6, 1932, continued with the statement that, "The outcome of the negotiations is hardly more gratifying than the way in which they were brought about and conducted." You seemed to understand at that time that the officers of these labor unions went to the membership with their questions, because you stated that, "the labor leaders secured authority from their organizations to negotiate to a conclusion questions which had been raised by themselves, and also the question of a reduction of wages, which had been raised by the railway presidents."

In presenting the co-operative spirit of these same labor leaders, whom you now regard as irresponsible, your earlier editorial stated that, "they dealt with the problem presented in as fine a spirit and as statesmanlike a way as any important economic problem has been dealt with during this depression." You stated further that, "Railway labor leaders and employees have shown a fairness, reasonableness and public spirit in helping the railways in this emergency that are in marked contrast to the attitude that has been assumed by regulating authorities and many shippers." Apparently at that time you regarded these same railroad labor leaders as being fairer and more public spirited than were the customers of the railroads or the state or federal authorities who regulated the railroads.

Your editorial of February 6, 1932, concluded with this significant statement, "Never before during this depression have any men in the United States given so fine an example of leadership as was given by the leaders on both sides (you are referring to railway labor leaders and railway management) who brought about this voluntary reduction of railway wages."

An analysis of the two editorials here referred to would indicate, Mr. Dunn, that railway labor leaders are fair, reasonable, public spirited and statesmanlike when they agree to accept reductions in wages, but that they are irresponsible and autocratic when they respond to the demands of their membership and proceed in an orderly, law-abiding manner to obtain much needed increases in wages.

I assume, of course, that *Railway Age* desires to have its readers understand the true facts with respect to questions with which you deal in your publication and I suggest, therefore, that you publish this reply to your editorial of July 10, 1937.

Our Reply to Mr. Keller

We are glad to comply with Mr. Keller's request that we publish his letter. In doing so, however, we emphasize that it does not refute a single statement made in the editorial entitled "The Irresponsibility of Labor Unions" which was published in the *Railway Age* of July 10, and, in fact, only in small measure constitutes a reply to it. This will become completely plain to anybody who will carefully read the editorial and then as carefully read Mr. Keller's letter.

In the editorial we said that "a labor organization may be 'irresponsible' either (1) in the sense that no agreement or 'contract' is legally enforceable against it and its members, or (2) in the sense that it cannot be relied upon to carry out its agreement." Mr. Keller does not say a word about the *legal* responsibility or irresponsibility of labor unions, by which he tacitly admits that in this sense they are irresponsible. His tacit admission of this involves admission that they cannot make *real contracts,* because a real contract is defined as "an agreement *enforceable by law* and in such form and made under such circumstances that a breach of it is a good cause of (legal) action."

The *Railway Age* said that in the sense that they can be relied upon to carry out their agreements, the railway labor unions are responsible, and that "it is rarely there is any complaint" of violation of their so-called "contracts." Mr. Keller objects to the use of the word "rarely" and, in effect, challenges this paper to cite any instance in which a standard railway labor union has violated a contract. That raises a question of what is a violation. The *Railway Age* could cite literally scores of instances in which groups of members of standard railway labor unions have suspended work in disregard of provisions in the agreements of their unions with the railways. It may be said that the suspensions of work referred to were seldom or even never authorized or ordered by the unions. But how responsible is any union which (1) cannot prevent its members from violating an agreement it makes for them and (2), cannot be penalized for their violation for the benefit of the other party to the agreement?

Corporations Legally Liable, Why Not Unions?

Mr. Keller attacks the statement made by the *Railway Age* that "the present irresponsibility of labor unions begins with the election of their officers." What this paper meant by this and other similar statements was that labor unions are not responsible in the same way as the railway companies and other corporations with which they deal, or desire to deal, because they are not subjected to the same requirements of *law* regarding the election of their officers, the keeping of their accounts, the collection and use of their funds and their other activities. There is no equality or even similarity between the "responsibility" of labor unions that conduct their affairs in any way that they themselves choose and subject to no legal requirements whatever, and the responsibility of corporations that must, under penalty, conduct their affairs entirely in accordance with the most strict and comprehensive requirements of law. The only way to make labor unions as responsible, and responsible in the same sense, as the companies with which they now carry on, or desire to carry on, collective bargaining is to require labor unions to incorporate, subject them to provisions of law regarding the conduct of their affairs similar to those now applied to other corporations, and make them as liable to action in the courts for violation of their contracts as other corporations.

The *Railway Age* expressed the view that legally irresponsible labor unions threaten "to become the greatest menace to democracy in both industry and government." Mr. Keller replies: "I was under the impression that the greatest real menace to democracy and government that exists today is that of Communism. It is a real menace, not an imaginary one. The American labor movement is doing more to prevent the further growth and development of Communism than any other agency in America, with the exception of our religious institutions."

Is Communism More Dangerous Than "Conservative" Unionism?

The *Railway Age* frankly dissents from every word in the sentences just quoted from Mr. Keller's letter.

This paper has little fear of "Communism" as advocated and promoted by Communists. It has much fear of the efforts of the so-called "conservative" labor unions to scare business and the people into acceptance of policies that are essentially communistic. Communists seek destruction of private property by force. Many labor leaders calling themselves "conservative" seek to destroy private property by the peaceful means of making labor costs so high, and in consequence profits from private ownership of property so small, that it will not be worth owning. The means used or favored are different, but the objective is the same—i.e., the destruction of private property.

In direct support of this view we cite Mr. Keller's own statement that "A triennial convention of our brotherhood put our organization on record as favoring government ownership." The adoption of government ownership of railways necessarily would involve the destruction of private property in railways, and would be the longest single step that could be taken toward the destruction of all private property and the establishment of state socialism in this country. With what consistency or right do those who advocate such a policy condemn Communism and claim to be defending the nation from it? Their economic philosophy is the same as that of the Communists, and they are much more dangerous because they are much more numerous and, unlike the Communists, fool both themselves and many others regarding their true philosophy and objectives.

Nobody can make any headway in this country by advocating, as the Communists do, the forcible and immediate complete socialization of all property; but many, including the railway labor unions, are effectively promoting the cause of complete socialization by advocating, in their own supposed selfish interest, policies tending to destroy private ownership of railways and of many other kinds of property. There is absolutely no more reason why employees of railways should try to drive the railways into government ownership than why employees of other industries shoud try to drive these other industries into government ownership; and yet if all employees of the various industries should start a movement to force the property of all their employers into government ownership the movement would be immediately recognized as socialistic in the extreme and would be endorsed by every Communist in Russia as well as here. The only real difference between avowed Communists and advocates of government ownership is the way in which they would bring socialism about.

Do Union Leaders Give "Outs" An Even Break?

Regarding the "democracy" of labor unions, the labor organization press is completely under the control of the "ins," and any opposition which may develop to those in power has no adequate vehicle of publicity; any fight against the "ins" is thus conducted under a terrific handicap. This is scarcely in accord with truly democratic procedure, which relies on an active and well-organized opposition to hold the dominant administration in check.

While we have nothing better than hearsay upon which to rely, we have nevertheless heard of a railway labor organization in which, it is said, the executive withdrew charters from locals which he believed were planning to send delegates unfriendly to him to the convention of the organization. And we believe we recall an instance of a Canadian vice-president of one of the international unions who got into an argument with the grand officers, and was ousted from his job, not by the members of the organization, but by the grand officers. His sin lay in sending a statement of his side of the case to each local of the organization—a privilege every man ought to have in an organization which claims to be democratic. The United Mine Workers of Illinois have not had an election for five years because each year John Lewis declares there is an "emergency" and that therefore the same officers will stay in.

Delegates to a convention of Mr. Keller's organization may have gone on record in favor of government ownership of railroads, but is he prepared to say the same of all the organizations whose officers a year or so ago committed them to that objective? And even if the conventions had so gone on record, that is no proof that the rank and file of the organizations approve of it; and if the rank and file do *not* approve, then the action of their chiefs in committing them to it is the antithesis of democracy.

Mr. Keller's organization may provide its members with a check upon the expenditures of union funds—but we doubt that the practice is general among the unions. And anyhow, since these funds are being used in part to influence elections and political policies, it is not the members alone who should have access to these figures; they ought to be public property like those of any corporation "affected with a public interest."

Who Knows How Strike Votes Are Counted?

As for strike votes—who ever knows for sure exactly what they disclose, excepting the grand officers who ask for the vote in the first place, and then count it? When strike votes are conducted by secret ballot, and are tabulated by impartial tellers, then they will conform with democratic practice. They do not so conform yet.

As used in connection with unions, the word *responsibility*, as we understand it, has at least two possible meanings. One is moral—that is, the unions being free agents and able to determine their own actions, are accountable to society for the results of their actions. It is in this sense, we believe, that the railway unions may lay claim to some sense of responsibility. That is, they feel an obligation to the community to live up to their contracts, and do so. Even this sense of responsibility, however, is not completely developed. Actually the policies of the railway labor unions to a large extent govern the profitability of the railway industry and its ability to compete with rival agencies of transportation. But as yet the unions have not accepted this portion of their moral responsibility to the extent of acting upon it.

The other aspect of *responsibility* is legal rather than moral. It means that duties are imposed by law upon the holders of power, commensurate with the power they enjoy, to the end that it be not abused. A corporation might feel no moral obligation to live up to its contracts, but its legal obligation to do so is unavoidable. It is quite otherwise with unions. Their legal responsibility for their actions is decidedly limited; and, in this sense of the word, all unions are largely irresponsible.

It is our observation that the railway unions are considerably advanced over the generality of unions in their acceptance of moral responsibility, though even in that field there is a vast opportunity for improvement. In legal responsibility, on the other hand, there is almost none laid upon any unions commensurate with that imposed upon other associations of persons enjoying comparable powers.

We still believe that the railway labor leaders handled their part of the wage deduction agreement in a statesmanlike manner. One swallow, however, does not make a summer; and our praise of that action certainly does not commit us to approval of every action the unions take or policy they adopt for all time to come.

Diesel-Engine Maintenance on the Canadian National*

Complete service records, centralization of repairs and steam-locomotive repair methods aid in reducing maintenance costs

By I. I. Sylvester†

ABOUT twelve years ago the Canadian National recognized the necessity of handling economically traffic of small proportions and therefore made careful studies of existing types of motive power, from which it was decided that the self-propelled car using an internal-combustion engine was most suitable for the intended service. The lightweight high-speed Diesel engine, because of its compact size and relatively high thermal efficiency, was chosen for the power plant.

In the beginning, the object was not to provide a de luxe service beyond that offered by steam trains, but rather to substitute Diesel-electric rail cars on runs then operated at little or no profit, and on lines having relatively light traffic. In the light of recent developments on other railroads of high-speed Diesel-powered trains with streamlining, air conditioning, and luxurious appointments, the original venture of the Canadian National appears rather modest.

The choice of lightweight high-speed Diesel engines for rail service was extremely limited in those days, although it has expanded tremendously during the intervening years. Today we are operating rail cars and locomotives ranging from 200 to 1,330 b.hp. However, this particular paper will deal only with the maintenance of three principal groups of rail-car engines of from 200 to 350 hp., comprising 26 units which have run over ten million miles in passenger service. These engines were placed in service in 1925, 1927, and 1930, and even though they include improvements evolved over a five-year period, their maintenance problems are almost identical.

Soon after the commencement of Diesel-electric rail-car service, it was recognized that the oil-electric car offered great possibilities for economical operation and high availability, provided a satisfactory program for maintenance could be worked out. The lack of experience and knowledge on the part of those called upon to handle the engines, and of the designer and builder, regarding operating conditions, was a serious handicap in the early days. The seniority system, commonly followed in railway organizations, sometimes mitigated against the selection of the most capable men. Also the locomotive-shop staff had not previously been called upon to perform the type of work required in maintaining the fine working clearance of the wearing parts. However, these conditions have been quite general on railroads on this continent and are mentioned here only because they had such an influence on the amount and type of maintenance required.

The most desirable condition is found in large numbers of identical equipment, centrally located, as expert supervision can be provided and the staff soon becomes accustomed to the new routine. The other extreme is found in rail-car service where the units are operated over an extremely wide territory, which interferes with efficient training and seriously affects availability of the equipment due to deadheading to and from a centrally located repair point. This latter condition applies particularly on the Canadian National, and the maintenance methods were developed to cope with this situation. All these problems have demanded as much attention as the technical difficulties—possibly more.

General Features of Maintenance Program

The type of engines to which this paper applies in particular are four-cycle direct-injection engines of both British and American manufacture, the original research work having been carried out by the Wm. Beardmore Company at Glasgow prior to 1924 and the later development by the Westinghouse Company at their South Philadelphia plant. The essential particulars of these units, which were the subject upon which maintenance investigations were carried out between 1925 and the present time, are given in Table I. These include two columns of figures showing the maximum and minimum sizes, weights, and conditions. The tabulation of the extremes in Table I indicates the design limits of the principal rotating and reciprocating parts around which most of the maintenance problems have centered.

Table I—Principal Proportions of the Diesel Engines

	Minimum	Maximum
Cylinder bore, in.	8	9
Stroke, in.	12	12
Brake mean effective pressure, lb. per sq. in.	77	82.5
Maximum cylinder pressure, lb. per sq. in.	750	800
Diameter of main bearing, in.	5.00	5.00
Length of main bearing, in.	3.70	4.65
Diameter of crankpins, in.	4.75	5.00
Effective length of crankpins, in.	2.29	4.04
Ratio of shaft diameter to cylinder bore	0.555	0.575
Ratio of wrist-pin diameter to cylinder bore	0.315	0.322
Ratio of piston length to cylinder bore	1.4	1.9
Ratio of connecting-rod length to cylinder bore	2.43	2.21
Total weight of connecting rod, lb.	37.94	70.19
Weight of crank end of connecting rod, lb.	26.38	54.09
Weight of wrist-pin end of connecting rod, lb.	11.56	16.11
Weight of piston, lb.	18.19	35.00
Number of pressure rings	4	6
Number of scraper rings	1	3

The first feature of our maintenance consists of daily reports made out to show the fuel, lubricating oil, and other supplies used, mileage operated and load hauled, together with any trouble experienced during operation, and finally the repairs and inspection which are made

* Abstracted from "Maintenance of High-Speed Diesel Engines on the Canadian National Railways," which was presented at the semi-annual meeting of the American Society of Mechanical Engineers at Detroit, Mich., May 17 to 21, 1937, and published in A.S.M.E. Transactions, May, 1937.

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daily. These data are compiled monthly to show the average condition obtaining for each car and, as all the equipment is included in this report, it permits the individual maintainer to compare his performance with that of others. This report also shows any troubles which occur with such frequency as to warrant investigation, thus keeping problems in order of their importance before the supervising staff. An analysis of these records over extended periods of operation also indicates any inherent weakness which can be remedied in new designs.

In a general way the practices developed are a combination of railway maintenance ideas and those used in the repair of gasoline engines. Many of the methods employed are quite in line with those generally accepted in fleet operation of trucks and buses. In fact, much inspiration has been drawn from this source when grappling with the more difficult problems. In these installations engine size and weight have been kept to a minimum with the result that provision for successive wear and remachining is not generally made to the same extent as in steam-locomotive work. One principal difference lies in the rather extensive use of welding and, of late, chromium plating as a means for reconditioning wearing parts. Fusion welding, as developed in steam-locomotive service, is now being used extensively in Diesel-engine repairs and much progress has been made in recent years in the use of the electric arc and acetylene flame for the building up of worn parts as well as repairing fractures. Good results were not obtained in this new application without overcoming several technical difficulties because the original development on the railway had to do with structural-steel plates and boiler work in which the metal was quite readily welded. However, in the repair end, large varieties of special metals had to be dealt with and in many instances heat-treatment to regain physical properties of the finished part became a problem.

Considerable ingenuity has been required to develop successful welds on such parts as pistons, cylinder liners, and valve gear. The service engineers of companies which supply welding materials have been of great assistance in the development of suitable welding rods for this work and in providing instructions for their satisfactory use. This process is now responsible for reduction in our maintenance costs.

Within the last year or so we have been investigating the merits of hard chromium plating in an effort to lower the rate of wear on certain parts and also as a means of regaining the original size where possible. Worn surfaces on pins and journals, of crankshafts, wrist pins, cylinders, and various other small parts have been built up with chromium and satisfactorily salvaged. This type of plating must not be confused with the decorative plating which is used more or less in the form of a lacquer to preserve the copper-nickel plating underneath, as it is applied directly to the base metal. We are using thicknesses varying from 0.003 to 0.015 in., depending on service conditions. Excessively thick plates are not found desirable and, for that reason, the original sizes are not always regained. Ordinarily, although sufficiently tough and adherent for bearing conditions, this plate will not endure excessively high unit pressures or shock. For example, in a Brinell test, the high-pressure load of the ball in making the impression will crack the plate and the reading will be practically in line with the base metal underneath. We have taken readings on plated parts with the Firth diamond tester which makes a small impression in the plate and is not affected by the hardness of the base metal. When these readings are converted into the Brinell scale they range from 650 to 900, which is considerably harder than any bearing surface usually encountered. When finishing is carefully carried out, a hard, low-friction, wear-resisting surface is produced and the service to date indicates that long life can be expected from these parts.

Cylinders and Pistons

The cylinders in these engines are in the form of relatively thin tubing, accurately machined all over, and are snugly fitted in the crankcase. They are of the wet type, being surrounded by cooling water, and the joint at the bottom is made by means of rubber rings. This construction, which is now generally accepted for this type of engine, is well suited to maintenance because of the ease with which the cylinder can be removed for repairs or replacement.

A system of recording rate of wear on cylinders and pistons, started 10 years ago, gave an accurate record of sizes whenever cylinders were dismantled. At first it was believed that this record would give us an indication of the direction of wear around the circumference of a cylinder and possibly lead to a correction of it. However, there was found to be no regularity in this wear. The principal value of the record has been the determination of average wear on the cylinders of different groups of engines, thereby providing the basis for a maintenance program. A comparison of wear resulting from the use of different fuels and of different cylinder materials has been gained from these records, and they have shown the accuracy with which replacement cylinders are installed.

Cylinders are being reconditioned by electrically welding a band of metal on the worn portions of the cylinder walls, after which they are bored and ground to size. Chrome plating and nitrating steel are also used for reconditioning cylinders. The application of cast iron in

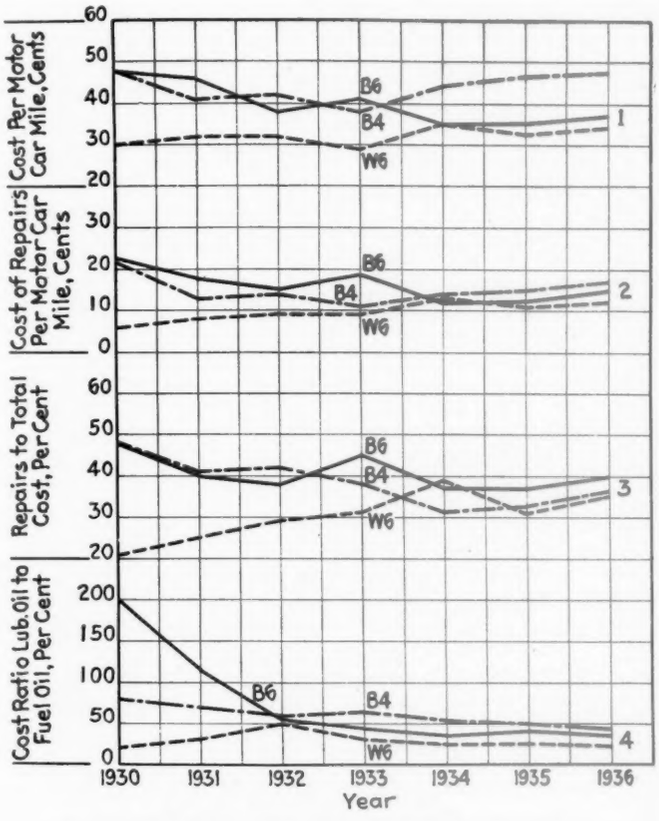


Fig. 1—Cost Per Car Mile for Diesel-Engine Operation

During the period shown in this figure the engines were operated an average of 192 miles per day. The letters on the curves refer to Beardmore four- and six-cylinder and Westinghouse four-cylinder engines.

place of steel cylinders has also been tried. The greatest difficulty with cast iron on these particular engines, which were designed for steel cylinders, is the application within the narrow confines of the crank case. Cylinders of nitralloy steel, under test over 259,000 miles, show only one-quarter to one-fifth the amount of wear found on mild-steel cylinders in similar service.

The pitting of the steel cylinders, as a result of the action of the cooling water on the outside, is also a problem which has been dealt with in maintenance. No trouble whatever has been experienced with pitting on cast-iron or nitrated cylinders.

Of the various wearing parts of these engines the pistons present the most complex problem and have been the subject of considerable study, both as to design and maintenance. Further, the introduction of aluminum-alloy pistons, so essential to these high-speed, lightweight engines, has tended toward higher lubricating oil consumption.

Wear of the ring grooves in any of the alloy pistons appeared as a difficulty early in the operation of these engines. It was, in fact, this item which determined their useful life. In bringing this factor within reasonable limits, it has been necessary to consider the effect of the fuel oil as well as the design and metal from which the pistons are manufactured. In the early days, fuel specifications were written in broad terms to take care of the very wide territory in which these engines operated. However, it seems that two fuels can have apparently identical physical characteristics and yet the reaction on the piston from a wear standpoint may be widely different. Improved fuel specifications which have been developed and the adoption of narrower and diametrically thicker rings proved helpful. However, there was still the necessity for reconditioning the ring grooves. Wear on the top grooves has been limited to 0.006 in. and when this is exceeded the grooves are machined out to take over-width rings. It has been proved that good piston rings in equally good grooves are steps in the right direction, and much of our effort has been directed toward this end.

Crankshafts and Connecting-Rod Crank Bearings

Diesel-engine crankshafts are handled in a manner similar to the pistons and liners in regard to records of wear and sizes. In some studies made several years ago comparisons were made between nickel, chrome-nickel, and carbon steels for wear resistance, and it was found that there was very little choice between them. However, in replacement, the trend has been toward alloy steels because of the harder bearing surfaces and greater strength. On main journals the wear varies between one and two thousandths on diameter in 100,000 miles and the crankpins show six to nine thousandths during this period on the usual run of crankshaft steel.

The nitralloy crankshafts which were applied several years ago are standing up remarkably well, and, on the average, indicate the wear to be about one-sixth that usually found. In practically ever instance, regardless of the type of steel, however, the crankpin wear is four to five times that found on the main journals.

One of the problems which developed in the early use of these engines, and for which the maintenance staff was obliged to find a solution, related to crankbearing failures.

As a consequence of the poor results obtained with the bearings in the early days and the time required to obtain replacements and deliver them to remote parts of the railway system, attempts were made to manufacture bearings in the railway shops. At first these were not very successful, but by the use of special babbitt with high lead content, together with improved practice regarding its application, the crank bearings have ceased to be a troublesome feature in maintenance.

General

The four-cylinder engines have been practically free from any renewal of parts on the gear cases in spite of mileages around 500,000. On the six-cylinder engines, however, this unit becomes noisy at about 150,000 miles and will require renewal of gear-case parts at 200,000 miles.

The type of wrist pin with which these engines are fitted, which is free to revolve both in the piston and the bearing, is very easy to maintain. It is only in the last few years that they have required any attention. Wear of 0.006 in. is the maximum which has been found even after many years' operation.

Table II—Maintenance Practice for Diesel-Engine Parts

Part	Limits of wear	Average mileage	Type of repairs
Crankshaft	0.006 in. out-of-round on two or more crankpins	250,000	Recondition
Cylinders	Worn between 0.045 and 0.060 in. on diameter	150,000	Recondition
Pistons	Worn 0.010 in. above top ring; 0.006 in. clearance in three ring grooves; 0.005 in. clearance in wrist-pin hole	100,000	Recondition
Connecting-rod bearings	Clearance maintained between 0.003 in. and 0.004 in. by adjustment of shims	No record of worn-out bearings	
Wrist pins	Worn 0.006 in. on diameter	300,000	Renew
Exhaust valve	Renew when bent, warped, or stem worn 0.005 in.	75,000 200,000	Grind Renew
Exhaust-valve guide	Renew when worn 0.008 in.	100,000	Renew
Piston rings	Gap opening increased to ⅛ in.	75,000	Renew

Fuel-injection pumps and atomizers are sent in to a central repair shop for conditioning.

Governors, lubricating-oil pumps, water pumps, and primary fuel-oil pumps operate over 200,000 miles between shopping periods without trouble.

Some further impressions of the average mileage which is being obtained from various engine parts under the maintenance practices in effect on the Canadian National are shown in Table II. This also shows data relating to the limits of wear which are in effect.

Further details of the more important factors pertaining to the cost of maintenance are included in Fig. 1 for 1930 to 1936, inclusive. The average trend of total cost per mile, shown in curve 1, has been downward to 1934 and has held between 36 and 40 cents per mile since then. One of the greatest influences on total cost is total miles and, unfortunately, as a result of alterations in train schedules, the runs which have been operated by this equipment are shorter than previously. At one time groups of these cars were on runs of 300 miles per day and this dropped to 200 miles in 1929 and has made a further drop of 13 per cent since. The fact that repair cost has held constant, or been slightly lowered, as shown in curve 2, in spite of this, is very gratifying. It has been impossible to obtain the cost of engine repairs separate from the other mechanical and electrical repairs. However, the fact that there has been a general improvement in this is seen from curve 3, which gives the repairs in per cent of total cost. Last, but not least, in curve 4 is shown the very satisfactory reduction in lubricating-oil consumption which has resulted from a systematic handling of pistons and cylinder-liner repairs.

Some ideas on depreciation of Diesel-engine equipment

can be gained from our experience. In the first place the results after 12 years with the oldest engines indicate that an estimated life of 20 years is conservative. The possibility of engines of this type becoming obsolete or the costs rising to where they are uneconomical after extended service is remote. By inexpensive investigation it is possible during overhaul to improve and modernize the engines, even within the narrow confines of existing crankcases, with beneficial results. Finally, by careful records of wear being kept, a systematic handling of repairs can be set up which results in a lowering and stabilizing of engine-repair costs. Up to the present it would appear that depreciation is practically taken care of by renewal of the active parts.

Odds and Ends . . .

Mrs. Carl R. Gray—American Mother

Mrs. Carl R. Gray, wife of the president of the Union Pacific, continues to be honored by national societies. She was recently named "American Mother of 1937" by the Golden Rule Foundation, and, later, was elected president of the Home Study Bible Association. Mrs. Gray taught the original Sunday school class from which this national association grew.

"Eastern Lines"

A group of Westchester County commuters has taken over the unused Pelham Manor, N. Y., station of the New York, New Haven & Hartford, and turned it into the headquarters of the "Eastern Lines." One of the most elaborate model railway systems in the country has been set up there, and it is in a flourishing state, being subject only to such regulation as the owners themselves give it.

Wild Goose Chase

A wild goose has taken up the interesting sport of racing Pennsylvania trains in the vicinity of Asbury Park, N. J. When the trains stop at stations, the fowl circles about until they start again, gives them a head start and then beats them into the next station. This spectacular pastime is in direct contrast to the human geese who race trains to grade crossings. Unlike their wild brother, these birds always lose.

Frisco Emblem

Digging into the history of the St. Louis-San Francisco, John G. Lonsdale, co-trustee of that railroad, has learned that the road's insignia, which is in the shape of a coonskin, actually had its origin in the dried coonskins which formerly were nailed in abundance on barn doors throughout rural Missouri, Arkansas and Oklahoma. In the above photograph, Lonsdale is shown with the coonskin which hangs in his office, and which illustrates the similarity to the Frisco insignia.

Under the coonskin are the words, "Results Count—Look for the Coonskin on the Barn Door."

"In 1890," Lonsdale explained, "which was about the year the Frisco insignia was adapted from the coonskin, it was a common sight to see a barn door literally plastered with coonskins. When a farmer invited someone to go coon hunting with him, it was customary, before accepting, to take a look at the barn door. If an abundant supply of coonskins was nailed to the door, that was evidence of the fact that the farmer was a good hunter."

Dangers of Railroading

When the Great Western of England was being constructed, a good deal of opposition was met with from different people who conceived, for reasons which cannot easily be appreciated today, a general dislike for railways and a horror of their coming within a reasonable distance. The Eton College Authorities, in righteous apprehension of this new menace to the morals of Eton boys, placed an obligation on the Great Western to "maintain a sufficient additional number of persons for the purpose of preventing or restricting all access to the railway by the scholars of Eton College," the appointment, number, control, direction, and dismissal of these persons all being placed in the hands of the college authorities. These obligations were observed for more than 40 years and, when the railway secured special powers from Parliament to construct the Windsor branch, the college authorities again asserted themselves, with the result that the company was saddled with the duty of policing the line for the purpose of preventing scholars from getting on it.

Mystery Solved

It may take our research workers a long time—in this case 20 years or so—but, in the end, like the northwest mounted police, they always get their man. Railroaders everywhere will remember the furore caused by the appearance on freight cars everywhere of the following signature "J. B. King." Most of them tried to adopt the unique signature to their own names, and all of them wondered who the J. B. King was, whose chalked name appeared on so many cars. The mystery is now solved. J. B. King is now, as he has been for 25 years, general yardmaster at Palestine, Texas, for the International-Great Northern. He adopted his hobby of signing his name on box cars for no other reason than justifiable pride in his flowing signature.

Railroader Wins Radio Award

In recognition of heroic services rendered during the floods of March, 1936, to the citizens of Renovo, Pa., Walter J. Stiles, Jr., car repairman, Pennsylvania, has been selected by the Columbia Broadcasting System to be the first recipient of the William S. Paley amateur radio award. Presentation of the trophy symbolizing the award was made by the president of the Columbia Broadcasting System, following a luncheon in New York on Monday, May 24, and the ceremony was broadcast over the Columbia network. The selection of Mr. Stiles for the Paley award, which was established in the fall of 1936 and will hereafter be bestowed annually upon the amateur radio operator in the United States or Canada rendering the most notable and valuable public service during the year, was made by a board of distinguished judges. The board considered a number of noteworthy instances of public service rendered by amateurs during 1936, and, after weighing the achievements of all, decided that Mr. Stiles' were the most meritorious and unusual, and involved the greatest personal sacrifice.

Road or Rail in War

An interesting correspondence has recently been going on in the London Times regarding the relative value of highways and railways in war time. A recent letter gives the following viewpoint:

While it is at least extremely doubtful whether damage by warfare can be as readily repaired on the roads as on the railways, I should like to suggest that the correct answer to the question whether railways or roads are the more essential from the standpoint of a belligerent lies elsewhere. The fact is that our roads, even if they could be repaired instantaneously, would still be incapable of meeting the demands of wartime. A simple illustration will suffice. One thousand tons of ammunition could be moved at 30 m.p.h. in one train by one locomotive with the services of one driver, one fireman and one guard. The same freight, if moved by road, would require 100 vehicles and the services of 100 drivers. Even then the rate of transport would inevitably drop to an average probably not exceeding 15 m.p.h. In the matter of transporting troops, the position is similar: 10,000 men could be moved in 10 trains at 60 m.p.h. by 10 locomotives. Road transport could not accomplish the feat in any circumstances, even if the rate of transport were reduced by half it could accomplish it only by employing 300 odd vehicles and rather more than 300 drivers. Apart from every other consideration, the simple fact remains that without railways our roads would rapidly become congested to the point of uselessness. Such a situation would be unfortunate at any time; it might well be disastrous if 1,000 hostile aeroplanes were to "parachute" 3,000 soldiers where they were least expected.

Communications . . .

Four-Wheel Truck Defended

To the Editor:

During the Atlantic City convention L. K. Sillcox, first vice-president, New York Air Brake Company, delivered a very interesting paper titled "What Next in Car Equipment." The paper contains many valuable features and suggestions but there is one recommendation in particular which in my opinion is not well founded, namely, his recommendation for the use of the six-wheel truck under light-weight passenger cars—this recommendation being based on the premise that the railroads are experiencing many thermal cracked wheels at the present time and that these thermal cracks are caused by high speed, combined with high braking power.

There is no doubt but that thermal checking is a very serious defect when it occurs; however, it is always recognized and since it is plainly visible, wheel removals can be made before the thermal check progresses, causing a failure of the wheel.

As proof of this I can say, after having consulted the Pullman Company's records, that the company has never encountered a wheel that has failed because of being thermal checked.

Thermal checking is not necessarily associated with either wheel loads or the percentage factor used in calculating the braking power. This is proven by the fact that the number of thermal-checked wheels which have occurred have been growing fewer during the last four years, while at the same time train speeds have been on the increase. It is further proven by the fact that in the operation of the streamliners running to Denver and the Pacific Coast from Chicago only one pair of wheels has been removed because of reported thermal checks, and there is a serious question whether those wheels really experienced that defect, as a check inspection was not made before the wheels were turned and put back into service.

These streamliners are the fastest trains in the world, have the highest braking power, and have the heaviest wheel loads, because some of the cars are articulated, thereby further reducing the number of wheels per car—they have been in service over a year. These trains probably make the highest mileage of any trains in the world, amounting to 300,000 miles per year in the case of the Pacific-Coast train and 370,000 miles per year between Chicago and Denver.

Even in the case of conventional equipment, the speed of which has been constantly advancing during the last few years, it has never been demonstrated that there is any relation between speed or load and the thermal checking of wheels. The broken wheels that have occurred have in each case been traced to strains in the plate as being the cause.

The accompanying table covers the wheel removals due to thermal checks from Pullman cars on one of the largest railroad systems in the country. This system also operates trains of the highest speed of any of the other railroads, excepting those operating the streamliners. In order to avoid disclosing the railroad on which these cars have operated, the letters, *A, B, C,* etc., are used to designate the yards at which the wheels were removed.

The tabulation indicates that, during the last four years, one of the largest railroad yards in the country has not removed a single wheel from Pullman cars because of thermal checks. Another one of the largest yards removed only one thermal checked wheel during 1936. Another good size yard removed one wheel in 1933, but since that time has removed none for the same cause. There are other important yards which have removed a few wheels and there are some yards which have removed a good many so-called thermal-checked wheels.

The difference in the personnel making up the inspection crews in these yards must account for the large variation in the number of wheels removed for this particular defect but from the fact that more cars operate through the yards that are not finding these thermal-checked wheels, it is quite evident some of the other yards are reporting this defect which either doesn't exist or when it does it is of such trivial nature that the other yards allow the wheels to run. Since there have been no wheel failures resulting from the practice of the latter yards, it is quite evident that their inspection judgment is sound.

By referring to the table it will also be noted that in all cases except two, the number of thermal-checked wheels removed in 1936 was fewer than in 1933. The trend has been definitely downward in all of the yards excepting *H*.

In designing the new lightweight equipment, the Pullman-Standard Car Manufacturing Company has made reductions in car weights equal to 35 per cent to 40 per cent and in so doing has reduced the number of wheels per car 33⅓ per cent in non-articulated cars. In other words, the load per wheel in the lightweight car is not quite as great as the load per wheel in the heavier cars. Surely there is nothing here which would indicate that the lightweight cars should have six-wheel trucks. On the other hand, the use of six-wheel trucks would add seriously to the weight and cost of new lightweight equipment and would provide no corresponding benefit—they would add approximately 14,000 lb. or approximately 14 per cent to the weight of lightweight cars.

It has been recommended by some that the new lightweight equipment should be stopped in about half the distance that is now necessary for stopping a conventional train. No reason is advanced for this recommendation and to all appearances it is arbitrary without any sound logic to support it. The railroad engineer is governed by his signals which are so spaced as to allow approximately a mile for stopping conventional trains from top speed. It would seem just as logical to stop the new lightweight, high-speed trains in approximately the same distance. They are equipped with just as much retarding effort as are the conventional trains and, because of the ratio of total weights to wheel loads, can really stop in a somewhat shorter distance.

Wheels Removed from Pullman Cars on One Railroad Due to Thermal Checks

Point of removal	1933	1934	1935	1936	Av. car departures per day
A	..	..	..	..	166
B	1	..	..	..	34
C	11	4	3	1	60
D	47	19	8	6	49
E	88	41	15	30	78
Total	147	64	26	37	
F	564	400	253	189	54
G	371	260	289	160	37
Total	935	660	542	349	
H	128	51	168	600	32
I	48	..	..	..	9
J	38	21	39	3	27
K	55	61	101	33	15
Total	269	133	308	636	
L	..	..	1	4	41
Total	..	..	1	4	
Grand total	1,351	857	877	1,026	

In the grade-crossing accidents which have occurred during the last three or four years while we have been watching the operation of several of the high-speed lightweight trains, in no case has the damage to the high-speed trains been anything but very slight—usually amounting to only a dent in the front end. In no case has there been a derailment from these trains striking vehicles at grade crossings.

The wheel manufacturers are continually improving their product so that they are giving better service from time to time, as the result of that industry's research work. The latter has apparently kept pace with the requirements of the service, as is proven by the downward trend of the wheel defects occurring in service, such as thermal checks and shelling. There is no reason to suppose that the steel-wheel industry will not show continual progress in the future, thus keeping step with changes in service requirements.

In conclusion, therefore, I believe we can say that from factual data we have exploded the theory that thermal checks are becoming so serious as to require the adoption of six-wheel trucks under high-speed lightweight trains—the reason for such a recommendation seems to have no authentic foundation.

Ellis W. Test,
Assistant to president,
Pullman-Standard Car Manufacturing Co.

NEWS

A.A.R. Creates Research Division

Engineering research body to extend field held by equipment division; Wallace is director

Establishment by the Association of American Railroads of a Division of Engineering Research to expand and co-ordinate research work now being carried

L. W. Wallace

on by the railroads of the country in so far as it affects the physical properties was announced on August 11, by J. J. Pelley, President of the Association.

The Division of Engineering Research will have jurisdiction over all research relating to cars, locomotives, track struc-

G. M. Magee

tures, buildings, electrical, shop and maintenance of way equipment and the materials and supplies used in connection therewith. Not only will it deal with all mechanical facilities, but also with metallurgical and physical problems, as well as fuel, water, paints and other materials and supplies.

This new division will absorb the work now being performed by the Division of Equipment Research which was organized several years ago. L. W. Wallace, who has been head of the Equipment Research Division, has been appointed Director of the Division of Engineering Research. G. M. Magee, Assistant Engineer of the Kansas City Southern, has been appointed Assistant Director.

The scope of activities of the Division of Engineering Research is sufficiently wide as to bring under one head the closest correlation between all research activities having to do with mechanical, civil and electrical engineering, and also those dealing with many problems which are so closely related to each of these branches of engineering that there would be a duplication of effort and possible confusion if each branch was handled separately. Such correlation is necessary due to the ultimate relationship that exists between the design and operation of cars and locomotives and the design, construction and maintenance of road-bed over which they operate, and the equipment and supplies used therewith. Wide-spread research work into the adaptability and use of lighter metals will also come within the scope of the Division of Engineering Research.

The Division of Engineering Research will neither duplicate nor replace the activities of the test or research departments of the various railroads, but will be supplementary and complementary thereto. It will maintain the closest possible contact with the mechanical, civil, electrical, chemical and other technical offices of the railroads, the various divisions of this Association and all manufacturers who supply the railroads with equipment and materials.

Under the plan of organization, the Division of Engineering Research will be aided by two advisory committees. One will be the General Committee of the Mechanical Division of the Department of Operations and Maintenance, or an appropriate committee appointed by them, and will be designated as the Mechanical Research Advisory Committee. The other one will be the Engineering Research Advisory Committee composed of representatives of the Civil, Electrical and Signal Sections of the American Railway Engineering Association and the Engineering Division. In cases where both mechanical and civil engineering problems are involved, the committees will act jointly.

The headquarters of the Division of

(*Continued on page 218*)

Virginian To Get Added Traffic

Wheeler committee shows that road will get large increase this year

Shifting its inquisitorial gaze temporarily to the Virginian Railway, Senator Wheeler's subcommittee investigating railroad financing, on August 9, laid bare for the first time the facts surrounding the recent acquisition of control of the Virginian by the Koppers United Company. The highlight of the hearing came when J. P. Williams, Jr., and J. J. Michie, Jr., vice-president and assistant secretary, respectively, of the Koppers United Company, testified that it was the intention of the company to divert to the Virginian approximately 1,500,000 tons of coal a year and that the figure might eventually reach 2,500,000 tons a year. This coal traffic would be diverted from the Chesapeake & Ohio as the mines of the Koppers company are so located that by building some connecting tracks, much of the traffic now handled by the C. & O. can be handled by the Virginian. Basing the freight rate on a ton of coal to Virginia tidewater points at $2.25, the shift of 1,500,000 tons would mean a loss in revenue to the C. & O. of $3,375,000 a year. Senator Wheeler introduced a memorandum written about four years ago by Koppers officials which placed the total gross revenue which the Koppers coal mines could divert to the Virginian from other railroads at approximately $5,500,000 a year. Senator Wheeler charged that this memorandum was written just about the time that the Koppers officials first conceived the idea of buying control of the Virginian. The Koppers officials admitted that the company had decided to purchase the road because of the failure to get the Interstate Commerce Commission to reduce coal rates. The Koppers officials asserted that they were interested in getting lower coal rates in order that the sales of coke and coal might be stimulated in the Eastern seaboard territory.

Senator Wheeler also accused the Koppers Company of violating the "spirit" of the Sherman Anti-Trust Act, the Elkins Anti-Rebate Law and the commodities clause of the Interstate Commerce Act. This accusation was vehemently denied by both Mr. Williams and Mr. Michie, who said that they had fully investigated the transaction before any deal was closed, and had convinced themselves that through the medium of holding companies they could effect the desired result without coming within the scope of the above-men-

tioned acts. Senator Wheeler commented on this statement by saying that he wondered whether it was worth while to try to pass remedial legislation when these large interests immediately began to look for a loophole whereby the law could be evaded.

Senator Wheeler stressed the fact that he believed that the record would show that the Koppers company was in effect getting a rebate on each ton of coal shipped over the Virginian by its competitors. Declaring that $2.50 is the approximate freight rate on a ton of coal from West Virginia to tidewater points, he said that of each $2.50 paid to the railroad for carrying coal, 67 cents would go to Koppers as dividends. The officials denied that this was a rebate, but defended it as simply a return on their investment.

Senator Wheeler charged that the Koppers companies used the power of patronage as a club over the heads of the heirs of the H. H. Rogers estate during the transaction which resulted in the Koppers companies getting a 75 per cent interest in the railway's common stock. As brought out by the committee investigators, the transaction went through four principal stages.

The first step in the negotiations was the formation of the Virginian Corporation, a holding company, in January, 1937, to which the Rogers Estate and associates transferred 236,000 shares of Virginia Railway common. This block of stock represented about 75 per cent of the common stock and 40 per cent of the total voting stock. The Rogers Estate took in exchange for this stock all of the securities of the Virginian Corporation, which consisted of $23,364,000 of five per cent collateral trust notes, secured by the Virginian common, 78,120 shares of five per cent class A preferred, par value of $100 and 250,000 shares of $1 par common stock. The corporation authorized another type of Virginian Corporation stock—Class B preferred, but none of it has been issued to date.

The third step consisted of the sale by the Rogers heirs of all of their class A preferred and common stock in the new holding company to the Koppers Company and the Eastern Gas and Fuel Associates, both subsidiaries of Koppers United Company, for $7,870,600 in cash. The collateral notes were retained by the heirs. Koppers Company and Eastern Gas and Fuel Associates then sold all the class A preferred and one-third of the common stock in the new company for $7,832,130, leaving the net cost of the remaining common stock of the Virginian Corporation at the nominal figure of $38,000. It was brought out by committee investigators that the class A preferred and the shares of the common which were disposed of, were sold to a group of individuals associated with the Koppers enterprises and the Mellon family.

An exhibit was introduced into the record which purported to describe a ship-to-shore telephone conversation last January between Frederick H. Prince, Boston financier, and Harvery D. Gibson of the Manufacturers Trust Company. The conversation was described in a letter supposedly written by E. D. Davis, assistant freight traffic manager of the Baltimore & Ohio, to his brother Pierpont Davis of Brown Harriman & Co., Inc. Mr. Davis, the letter stated, had accidentally been listening in on his radio when he heard Mr. Prince tell Mr. Gibson that he wanted to deal with the Van Sweringen's successors with a view to consolidating the C. & O. and the Virginian. This exhibit was followed by another letter which appeared to be a proposition extended to Hafdan Lee, president of the Eastern Gas and Fuel Associates, for the merger of the Virginian with the C. & O. The letter was not signed, but Senator Wheeler suggested that it might have been written by Mr. Prince and that it might have been presented to Mr. Lee by John Barriger, chief examiner of the railroad division of the RFC. Mr. Barriger's name came into the picture only because attached to the letter was one of his calling cards with his address and telephone number written in. The letter stated that Mr. Barriger thought that the unification of the C. & O. was a good proposition, and the writer added that he was willing to finance it if it could be arranged.

The hearings on August 6, 10, and 11, were devoted to a careful scrutiny by the committee investigators of the proposed plan of consolidation of the Chesapeake and Alleghany Corporations. The committee is trying to discredit the plan by showing that its consummation will not improve the railway properties of the former Van Sweringen empire, but will tend to increase the weight of holding company control with a resulting loss to the investors of all the affiliated holding companies. Robert R. Young has been the chief witness and has consistently reiterated his belief that the plan is a sound one and that it will result in a distinct benefit to all who are concerned in the venture.

R. F. C. Loans To Railroads

The Reconstruction Finance Corporation's monthly statement for July shows that as of July 31 the loans to railroads (including receivers) were as follows: Disbursements, $532,126,239; repayments, $180,190,199.

Wage Negotiations Begun at Chicago

Negotiations between the Carriers Conference Committee and representatives of the Big Five operating brotherhoods for a 20 percent increase in wages were begun at Chicago on August 11. The first day was devoted to the checking of the credentials of representatives.

C. N. Runs Tour to Hudson Bay

A six-day, all-expense tour via the Hudson Bay line to Churchhill, Man., conducted by the Canadian National, started on August 13. Departing from Winnipeg, Man., the train's schedule calls for a stop at Dauphin and at The Pas, Man., an important mining center. On August 14, abandoning for a time the main line of the Hudson Bay road, the itinerary includes a trip over a branch line to Flin Flon, Man., another important mining locality, from which point, the train, on the next day, will proceed back to the main line and cover 510 miles thereon to the Churchhill terminus. After a 24-hour stop-over at the port city, the party will turn back on August 17, arriving in Winnipeg two days later.

"Rocket" on Exhibition Tour

An exhibition tour of seven days was begun by one of the three-car "Rockets" of the Chicago, Rock Island & Pacific on August 7. Among the 26 cities at which the train was shown were the Twin Cities, Minn., Mason City, Ia., Des Moines, Kansas City, Mo., Topeka, Kan., Burlington, Col., Colorado Springs and Denver.

Missouri Pacific to Improve Subsidiary Facilities

The Missouri Pacific has been authorized by the federal district court to spend $318,000 for improvements and repairs to freight handling facilities on the St. Louis, Brownsville & Mexico; the San Antonio, Uvalde & Gulf; the New Orleans, Texas & Mexico and the International-Great Northern.

Milwaukee Seeks Name for Train

The Chicago, Milwaukee, St. Paul & Pacific is offering $200 to the paying passenger who suggests a name which the railroad selects as most appropriate for its new Mason City-Chicago train, which went into service on August 8. During the first two weeks the train is in service special post cards for suggestions are being distributed by trainmen.

French Open Vosges Tunnel

A five-mile tunnel through the Vosges mountains between Saint-Die and Sainte-Marie-aux-Mines, France, was formally opened on August 8 by Albert Lebrun, president of the republic. Providing a new direct route between Paris and the province of Alsace via Nancy, the work is the outcome of plans originally introduced before the War of 1870 and dropped during the years of German occupation of Alsace.

The single-track tunnel, cut through granite for a great part of its length, is 25 ft. wide and 20 ft. high and has a maximum grade of 1.5 per cent. Completion of the link shortens considerably the running time between Paris and Strasbourg, the chief city of Alsace and, in addition, is regarded by military authorities as a route of strategic value in the French defense system.

International Railroad Riflery Match Set for September

Teams are now in formation to compete for the perpetual trophy presented by the Pennsylvania in the international railroad employees' riflery match to be shot on September 5 at Camp Perry, Ohio. A team of 20 shooters to represent the United States are to be selected and will be under the captaincy of F. R. Lesney of the Pennsylvania, Wilmington, Del. L. L. King of the Chesapeake & Ohio, at Columbus, Ohio, has been chosen adjutant.

The international contest, which is for small bore pieces, was inaugurated in 1927,

at which time railroad teams from Great Britain, Canada, and the United States competed for honors. The latter team represented 16 American roads. The United States won the Pennsylvania's trophy every year except 1928, 1932, and 1936, when it went to the English gunners.

Commission Issues New Regulations For Explosives

Commissioner McManamy of the Interstate Commerce Commission has issued an amended set of regulations for the transportation of explosives and other dangerous articles. The new regulations amend specification 8 of the order of the commission on May 12, 1930, and will go into effect on November 1.

Commission Defers Accounting Change

Division 4 of the Interstate Commerce Commission has changed the effective date of its order of July 13, which modifies the classification of operating revenues and operating expenses of steam roads by the addition thereto of an operating-revenue account to cover the tariff charges for protective service to perishable freight, to January 1, 1938, instead of July 1, 1937.

Engineman Wrecks Spanish Supply Train at Terminal

Running his train at full speed through the end of a stub-track, an engineman on the Madrid-Valencia de Alcantara line in Spain killed himself and several passengers on August 10. The accident, which occurred at the dead-end station in Caceres, terminus of the 11 mile branch from Arroyo on the main line, was interpreted by the Defence Ministry of the Insurgent government at Valencia as an act of planned sabotage. The train was carrying supplies destined for the Madrid front.

Japanese Lines to Employ More

The Imperial Government Railways of Japan will hire more than 12,000 new employees, effective October 1, at a total annual wage expenditure of 4,200,000 yen (approximately $1,218,000). Of these, about 10,000 will fill existing vacancies. This increased expenditure follows an announcement made on June 2 by the railway ministry, granting an average wage increase of 8 per cent to 170,000 employees with service records of a year or more. The increase plans call for graduated increases or "temporary allowances," effective from June, 1937.

First Aid Theme of A.A.R. Poster

The August installment of the "all the year—every year safety program" of the Association of American Railroads, Safety Section, urges employees to attend to and report immediately all injuries, however minor, stressing the fact that serious trouble often comes as a result of delay in first aid treatment. The poster is made up of a series of four action photographs depicting the outward aspects of so-called minor injuries, the whole of which is superimposed upon an enlarged duplicate of a typical personal injury report and a line sketch of a first aid station facade. The warning, "Do It Now," heads the poster in large red characters.

Fans to Tour Hoosac Tunnel Road

An inspection of the Hoosac Tunnel & Wilmington will be made by the Railroad Enthusiasts, Inc., on Sunday, August 29. Leaving Grand Central terminal, New York, special coaches, an observation and a diner attached to the regular Pittsfield Express of the New York Central will carry the party to Hoosac Tunnel by way of North Adams, Mass. There they will board flat cars, on which cross benches will be placed, and make the trip to Readsboro, Vt., over the Hoosac Tunnel & Wilmington, traversing a route on which passenger service has long been abandoned. The special will leave New York at 7 a.m. (eastern standard time).

Rail Employment For Month of July

At the middle of July the Class I railroads of the country had on their payrolls a total of 1,174,332 employees, according to a preliminary report of the Bureau of Statistics of the Interstate Commerce Commission. This was an increase of 8.14 per cent over July, 1936, and 0.26 per cent over June of this year. The maintenance of way and structures group led the list with an increase of 10.08 per cent over July of last year and was closely followed by the maintenance of equipment and stores group, which showed an increase of 10.07 per cent over July of last year. The index number for July, based on the 1923-1925 average as 100, stood at 65.7.

Carriers to Have Place in Argentine Transport Board

The Argentine government, in a decree stipulating the nature of the personnel of the commission created under the newly authorized National Transport Co-ordination law, provides the machinery for selecting the representatives of the railway and highway transport interests. According to the co-ordinating act, the regulatory body is to be made up of five governmental officers and one representative each from rail and highway transport.

Specifically, the decree provides that delegates of the various companies shall vote for 10 candidates in each of the two fields. Representation in these elections is to be given to individual rail carriers on the basis of one vote for each million ton-kilometers of freight carried over the latest five-year period, while highway companies are to have one vote for each vehicle owned. From the lists of 10 candidates selected in each category the government will appoint one commissioner.

Board Grants British Roads Rate Increase

Responding to a request made in May by the four major British railways for a general five per cent increase in both freight rates and passenger fares, the Railway Rates Tribunal has granted the change with minor qualifications, basing its decision upon the recent upward trend in material price quotations and the wage increase demands now under discussion before the Railway Staff National Tribunal. The increases granted, which are to go into effect October 1, though based on a uniform sliding scale, work out in both passenger and freight tariffs to comprise a general 5 per cent rise.

The increase applies to all types of passenger tickets, standard, monthly return, week-end, excursion and commutation fares. Exceptions to the ruling include suburban passenger fares on routes entirely within the jurisdiction of the London Passenger Transport Board, workmen's fares not exceeding a five-penny total, and general freight and coal shipments of which the total charge falls below 10 pennies per ton.

At present, British rail fares stand at one penny per mile third class and 1½ pennies per mile first class.

South African Officers to Visit U. S.

A delegation of officers of the South African Railways and Harbours Administration will arrive at New York on August 22 for a tour through the eastern part of the United States and Canada. The tentative itinerary includes Bethlehem, Pa., August 29; Philadelphia, August 30 to September 1; Washington, D. C., September 2-4; Norfolk, Va., September 6 and 7; Altoona, Pa., September 8-10; Pittsburgh, Pa., September 11; Chicago, September 12-19; Detroit, September 20; Niagara Falls, September 21-22; Montreal, September 23-26; Sidney, N. S., September 27; Boston, Mass., September 29-30; and return to New York where the party will remain until October 3, the date of embarkation for England.

The group will consist of W. A. J. Day, chief mechanical engineer; J. M. Greathead, assistant chief civil engineer; P. D. Troskie, chief superintendent of staff, and Dr. C. V. Von Abo, research engineer, and D. Mackintosh, production engineer.

Burlington Runs Trip for Modelers

More than 325 railroad modelers and other railroad enthusiasts were carried from Chicago to the Burlington, Iowa, and Galesburg, Ill., facilities of the Chicago, Burlington & Quincy on a special excursion operated on August 8. The train of 11 cars left Chicago at 8:30 a.m., carrying members of the Model Builders Guild, the Model Railroad Makers, the Chicago Society of Model Engineers, the Chicago Railway Club and the Bell Telephone Camera Club. At West Burlington, the delegation inspected the shops where a 200-ton traveling crane was in action and high-speed freight locomotives were under construction. At Galesburg the modelers visited the tie treating plant and watched cars pass through the hump yard. They also visited the roundhouse, where all types of locomotives were on display for photographing. On the return trip, the special was side-tracked so that the modelers could watch the Denver Zephyr pass.

Gages Simplified in Australia

As part of the commonwealth government's program to reduce the delays and constrictions arising from a diversity of track gages on the Australian lines, Prime

Minister J. A. Lyons recently opened a 56-mile extension of the standard gage Trans-Australian Railway from Port Augusta to Port Pirie, in the southern part of the continent, which inaugurates service without break of gage for the 1,108 miles between the latter terminus and Kalgoorlie.

Another effort to bring about a measure of uniformity in track gage has resulted in the construction of a 28 mile link of 5-ft. 3-in. gage track on the line between Port Pirie and Melbourne, which will eliminate general use of the 3-ft. 6-in. line between the two points. The total number of changes and additions provided for in the program will make possible shortly the reduction by a full day of train time between Perth and Sidney, two of the present six gage transfers being eliminated.

Construction Projects in China

Plans for, and actual construction of, additional rail lines in China continue to multiply. Extensions most recently contemplated include the building of a line between Nanchang and Wuchang, a distance of 120 kilometers (75 miles), at an estimated cost of approximately 13,000,000 yuan ($4,810,000), and construction of a 110-mile branch of the Chekiang-Kiangsi line from Kinwa to Wenchow, a coastal city in Chekiang province. More important projects already under way include the Kiangsi section of the Nanking-Nanchang line and construction of the Nanchang-Pinghsiang section of the aforementioned Chekiang-Kiangsi railway. Completion of the latter work will close the last gap in the route between Shanghai and Canton via the new trackage and the Canton-Hankow line and make possible the inauguration of 48-hour through passenger runs between the two important cities.

Freight Car Loading

Revenue freight car loading for the week ended July 31, totaled 782,660 cars, an increase of 11,680 cars or two-tenths of one per cent above the preceding week, an increase of 35,131 cars or 4.7 per cent above the corresponding week in 1936, and an increase of 187,363 cars or 31.5 per cent above the corresponding week in 1935. All commodity classifications except grain, ore, and coke showed increases over the preceding week, while all commodity classifications except coal and livestock showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

For Week Ended Saturday, July 31

Districts	1937	1936	1935
Eastern	158,063	159,150	131,945
Allegheny	158,857	149,884	113,659
Pocahontas	54,679	49,707	38,872
Southern	102,152	98,327	80,371
Northwestern	132,155	122,458	90,375
Central Western	116,776	110,788	92,000
Southwestern	59,978	57,215	48,075
Total Western Districts	308,909	290,461	230,450
Total All Roads	782,660	747,529	595,297
Commodities			
Grain and Grain Products	51,632	50,964	41,735
Live Stock	11,288	15,423	9,531
Coal	118,622	124,671	91,985
Coke	10,245	8,842	5,125
Forest Products	42,770	35,725	29,256
Ore	73,653	53,558	32,908
Merchandise L.C.L.	166,817	163,958	157,472
Miscellaneous	307,633	294,388	227,285
July 31	782,660	747,529	595,297
July 24	770,980	730,981	595,572
July 17	770,075	720,359	592,672
July 10	682,205	724,277	565,502
July 3	806,168	649,703	471,126
Cumulative Total, 31 Weeks	22,740,194	20,156,643	17,980,898

In Canada.—Car loadings for the week ended July 31 totaled 49,608 cars, as against 49,551 for the previous week and 44,706 cars for the corresponding week last year, according to the statement of the Dominion Bureau of Statistics.

Revenue Freight Car Loading

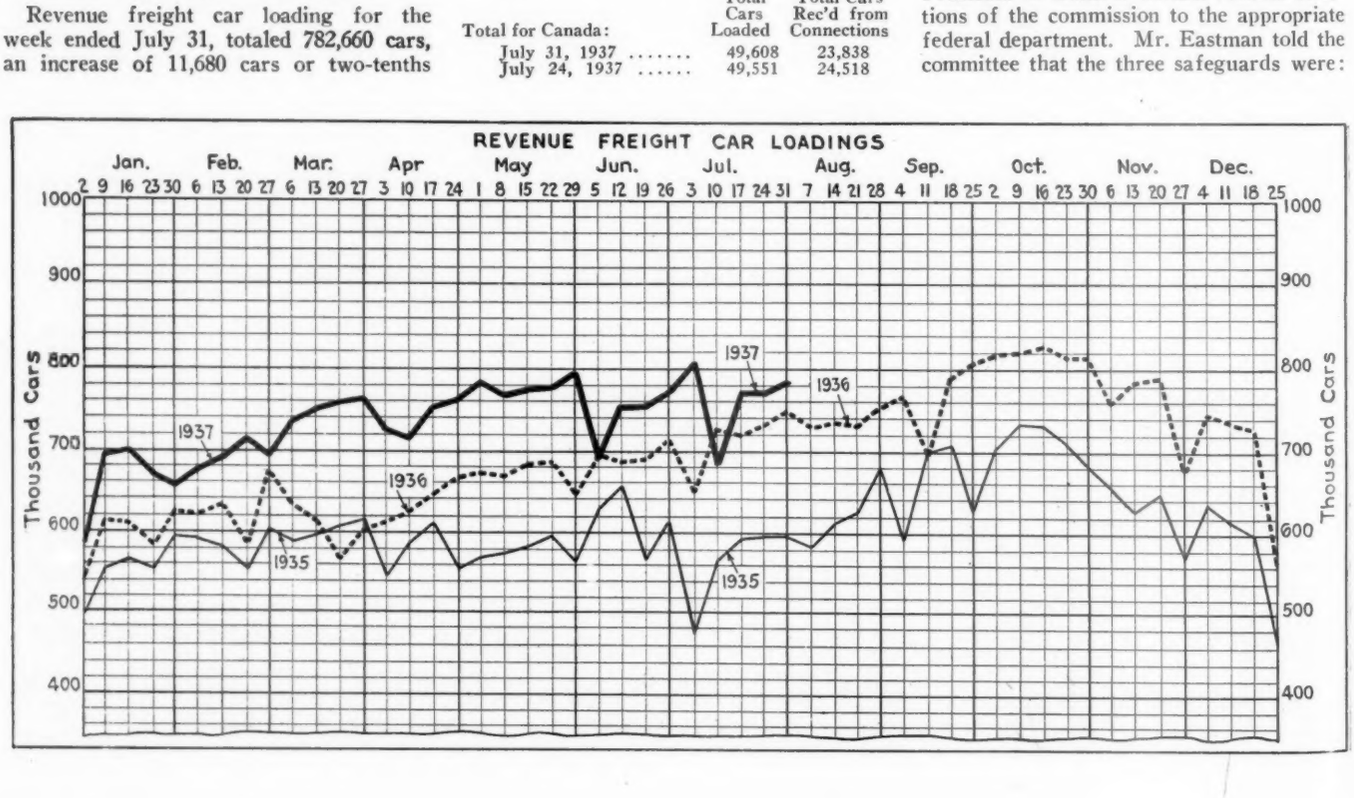
Total for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
July 31, 1937	49,608	23,838
July 24, 1937	49,551	24,518
July 17, 1937	49,858	24,684
July 25, 1936	44,706	21,984
Cumulative Totals for Canada:		
July 31, 1937	1,435,545	827,257
July 25, 1936	1,307,112	698,106
July 27, 1935	1,288,124	654,002

Number of Air-Conditioned Cars Increasing

Class I railroads and the Pullman Company on June 30 had 9,311 air-conditioned passenger cars in operation, according to an announcement made by J. J. Pelley, president of the Association of American Railroads. The number of passenger cars that are being air-conditioned is constantly increasing, the railroads and the Pullman Company in the past year having installed air-conditioning devices on approximately 1,700 passenger cars. Of the total number of passenger cars which have been air-conditioned, the railroads on June 30 had 4,751 in service. This included coaches, dining cars and other types of passenger equipment. The Pullman Company on the same date had 4,560 air-conditioned passenger cars in service, including sleeping cars, lounging cars and other passenger equipment. New passenger cars on order on July 1 this year totaled 424, compared with 177 on January 1 this year and 139 on July 1, 1936. The Pullman Company on July 1, this year, had 161 new passenger cars on order.

Eastman Declares Against Robinson Bill

Declaring that the three safeguards which Congress had placed around the commission were threatened by the Robinson government reorganization bill, Joseph B. Eastman, a member of the Interstate Commerce Commission, appeared before the Senate Special Reorganization Committee on August 9, and condemned that portion of the bill which would allow the President to transfer certain routine functions of the commission to the appropriate federal department. Mr. Eastman told the committee that the three safeguards were:



basing actions on records obtained at public hearings, bipartisan nature of the commission, and long, staggered terms for members. He also declared that certain "dangerous and ill-advised recommendations" had been made by the President's reorganization committee and carried over into the bill. He said that he feared that the measure might give the President the power to reorganize the commission internally. Mr. Eastman went on to say that the bill was so indefinite that it might give the President power to transfer from the commission "its legal, statistical, accounting and stenographic departments, without transferring any of the functions the Interstate Commerce Commission may perform." He also went on record as being opposed to the sections of the bill which made the President the sole judge of what jobs were "policy determining."

Edward S. Brashears, representing the Association of Practitioners before the I.C.C., told the committee that his association had voted 100 to 1 against the reorganization bill. R. C. Fulbright appeared in behalf of the National Industrial Traffic League and said that his organization was unalterably opposed to the Robinson bill. "Let this bill become a law," he said, "and within 10 years you will find the commission shot through with politics and pursuing a policy of political log-rolling rather than of expert non-partisan administration."

On August 10, the House Committee on Governmental Reorganization voted to recommend for passage a bill giving President Roosevelt broad powers for two years to abolish, consolidate or readjust the regular departments of the government, but specifically exempting such organizations as the Interstate Commerce Commission.

Britain Commemorates Another Centenary

In commemoration of the centenary of the opening of the London & Birmingham and the Grand Junction roads (Great Britain), now parts of the London, Midland & Scottish, prints, documents, books and other memorabilia relating to construction and early operation of the lines are to remain on exhibition until September 30 at the Science Museum at South Kensington in London. The two railways, which in 1846 were consolidated to form the London & North Western, represent the first attempt of British promoters to build comprehensive systems serving whole sections of the country. Previous to the construction of these two roads in 1837, only a few short, scattered, local railways were contemplated or in operation in Great Britain. Therefore, the completion of the London & Birmingham for 112 miles and of the Grand Junction for 82.6, together with connections to the Liverpool & Manchester, gave England its first trunk line system and afforded railroad service for important midland centers.

Union Pacific Gets Bus Permit

Disregarding the recommendations of Joint Board No. 49 which had advised the Interstate Commerce Commission that the Union Pacific had violated the provisions of the Motor Carrier Act, Division 5, of the commission has granted a certificate of public convenience and necessity to the road to operate as a common carrier by motor vehicle between Shoshone, Idaho, and Ketchum and between Sun Valley Lodge, Idaho, and Challenger Inn. The Joint Board had found that the railroad had been operating without permission from the commission and urged the commission to deny the application. The report points out that the previous violation of the law by the Union Pacific is not sufficient grounds to deny the present application. According to the report, the railroad has been brought into court for violation of the act and will be punished if found guilty. The proposed bus operation will connect the Union Pacific's new winter resort hotel with the main line at Shoshone.

Japan Holds North China Lines

Complete Japanese domination of the railways of the captured parts of Hopek and Chahar provinces in north China has been effected as an integral part of the Japanese-Chinese war program now progressing in the Far East. All of the lines of the Chinese government system in the area have been withdrawn from general commercial service for the use of the Japanese military and civil authorities. Chinese officers and employees, while continuing to hold their posts, are under absolute subjection to the military masters in control. Written permission must be secured for all train movements; Chinese and foreign passengers and goods are often detrained on short notice at minor stations by order of Japanese authorities.

According to news dispatches, all of the railways in the captured area have been made serviceable, except for a 30 mile gap in the Peiping-Mukden route, caused by recent flood conditions. Armored cars have been placed in operation at strategic points and all available rolling stock has been pressed into service as supply trains.

Cities Appeal H. & M. Fare Rise

In protest of a flat fare rise from six cents to 10 cents for transportation between Jersey City and lower Manhattan Island, New York, scheduled by the Hudson & Manhattan for September 1 (reported in the *Railway Age*, August 7, page 172), six municipalities in Hudson County, New Jersey, affected by the change in rate have filed a petition with the Interstate Commerce Commission, signed by the respective mayors of the participating cities. The chief point of argument of the municipalities' brief accompanying their petition is that the ruling of the commission permitting a 10 cent minimum fare in interstate service does not apply to the Hudson & Manhattan, declaring that the road should be classed a local interurban railroad. The petition further points out that Hudson County commuters, who make up the greater part of the patronage, would be greatly burdened by "unreasonable, unjust and discriminatory rates" and would contribute to a rise in gross revenue of the line of over 30 per cent.

A report issued in July, 1936, by Division 3 of the Commission, made in connection with the controversy over exemptions from the Railway Labor Act, found that the Hudson & Manhattan "is not a mere interurban as that term is used in the exemption provision," since it participates in joint rates and joint operations with trunk line railroads. The electric road, in addition to the rapid transit service under discussion, performs joint-ticket service between Newark, N. J., and New York in conjunction with the Pennsylvania and Lehigh Valley.

British Rail Workers Get Pay Rise

The union workers of the four trunk line railroads of Great Britain have been awarded wage increases amounting to £2,900,000 ($14,384,000) annually by a decision handed down on August 11 by the Railway Staff National Tribunal, under the chairmanship of Sir Arthur Salter. The original claims of the three unions, whose memberships comprise the majority of British rail employees,—National Union of Railwaymen, Railway Clerks' Association, Associated Society of Locomotive Engineers & Firemen, if granted, would have amounted to a total wage cost of £9,029,000 ($44,783,840) per annum. These original demands, with minor variations in the claim of each union, included full restoration of wage cuts permitted by the old National Wages Board in 1931, certain new increases, special concessions as to holiday and Sunday employment, and a general minimum weekly wage of 50 shillings (approximately $12.50).

The decision of the tribunal, a three-man board made up of one representative each from the combined unions and the four major carriers and an independent chairman has yet to be ratified by the unions and railways proper.

Senate Passes Through Routing Bill

The Senate on August 10 passed, without a record vote, S. 1261, a bill to amend the Interstate Commerce Act by giving the Interstate Commerce Commission authority to prescribe the shortest and most direct rail routes between shipping points. The bill will also permit the shipper to designate the shortest routes, if he so desires. The bill had passed the Senate at a previous session, and a similar bill is now pending before the House committee on interstate and foreign commerce.

The principal opposition in the Senate came from Senator Dieterich of Illinois, who strenuously objected to the bill being acted upon at this session in view of the fact that there had been no committee hearings. Senator Wheeler, who is the chairman of the committee on Interstate Commerce, defended the action by saying that this bill was almost identical with the ones on which hearings had been held in previous years, and that there was no justification for further hearings. He further criticized Senator Dieterich for not attending committee sessions. Senator Copeland of New York asked Senator Wheeler whether or not the Association of Ameri-

can Railroads had asked for a hearing at this session. He replied that they had not, to his knowledge. Senator Wheeler, in explaining the bill, said that it would do nothing more than the Interstate Commerce Commission had been doing for the past 19 years until, in the Missouri Pacific case, the Supreme Court declared that the practice of prescribing through routes was beyond the power of the commission. Senator Wheeler also read into the record a letter from Commissioner Eastman which strongly advocated the enactment of the bill.

Before finally passing the bill, the Senate adopted an amendment which states that "in fixing through routes and in determining what is desirable or necessary in the public interest, the Commission shall not take into consideration the necessity or desirability of diverting revenue from one railroad to another."

Swedish Rail-Cars Supplement Through Service

Diesel rail-cars are now utilized by the Swedish State Railways to perform "pick-up and delivery" of express train passengers at local intermediate stations along the routes of main-line runs. Operating at speeds which exceed the average of the through steam trains, the rail-cars pick-up and discharge passengers at intermediate stops and are so scheduled as to overtake the parent trains at express stops. According to the Railway Gazette (London), the motor units are operated on lengthy runs at high average speeds; one, for example, completes a trip of 158 miles in 5 hours 26 minutes, stopping at 45 regular stations. To make possible connections at express stops, the customary block signal rules have been waived and the rail-cars are permitted to follow the steam trains at a minimum distance of 300 meters (984 ft.), provided adequate visibility exists.

Truck Safety Regulations Widely Recognized

On August 6, the Interstate Commerce Commission announced that its first Motor Carrier Safety Regulations for common and contract carriers by motor vehicle subject to the Motor Carrier Act, 1935, have been recognized by every state and the District of Columbia, and have been adopted in whole or in part by 26 states. The Interstate Commerce Commission regulations, which were issued as the first section of a long-term safety program for interstate buses and trucks, embrace four parts, as follows: "Qualifications of Drivers," "Driving of Motor Vehicles," "Parts and Accessories Necessary for Safe Operation," and "Reporting of Accidents." All of them became effective July 1, 1937, except the requirements for reporting accidents which went into effect April 1. Continuing its long-term program, the commission recently issued tentative rules governing the "Transportation of Explosives and Other Dangerous Articles" and "Maximum Hours of Service of Drivers," for public criticism and comment.

Sixteen states have adopted, through action of their regulatory bodies, the first four parts of the commission regulations, making them applicable to all carriers subject to their respective jurisdictions. Ten other states have adopted portions of the Federal rules in order to establish uniform requirements, or have enacted new statutes which grant full recognition to motor carriers complying with the Federal regulations. Twenty-six states, therefore, in a period of seven months, have taken official action to bring about legal conformity with the commission's uniform rules. One other state has fixed the date for a formal hearing relative to adoption of the regulations, and several more are expected to adopt them before the end of 1937. In the remainder of the states, conflict between the Federal requirements and the existing state rules is either non-existent or of a minor nature, and reports from them indicate that an authorized interstate motor carrier who complies with the safety regulations of the commission will be recognized as exempt from the application of conflicting state laws or rules on the same subject.

With uniformity of safety requirements thus well established, the commission, through the field force of the Bureau of Motor Carriers, is effecting close working arrangements with the regulatory and enforcement authorities in every state relative to co-operation in policing the new safety rules. These authorities include public utilities commissions, motor vehicle departments, highway departments, and highway patrols, all of whom have shown a completely friendly attitude toward the commission's safety activities.

A.A.R. Creates Research Division

(*Continued from page 213*)

Engineering Research will be at 59 East Van Buren Street, Chicago, Ill.

Mr. Wallace and Mr. Magee are well qualified to head the new division. The former was born at Webberville, Tex., on August 5, 1881, and graduated from the Agricultural and Mechanical College of Texas in June, 1903. During his summer vacation in 1901, he was a machinist helper in the locomotive repair shops of the International-Great Northern at Palestine, Tex. After leaving college, he served as a special apprentice on the Gulf, Colorado & Santa Fe and in September, 1906, became a member of the faculty in the mechanical engineering department at Purdue University, serving specifically as assistant in railway mechanical engineering. He also spent several years as professor of railway and industrial management and was in charge of all railway mechanical work.

During his 11 years at Purdue, all of his summer vacations, except two, were spent in railroad work. His activities included work in car and locomotive design on the Missouri-Kansas-Texas; locomotive road tests and other experiments in the test department of the Atchison, Topeka & Santa Fe; association with Professor L. E. Endsley in tests for the American Steel Foundries with experimental track, relating to the frictional resistance due to sharp wheel flanges, and in comparative tests of rigid and flexible freight car trucks; preparation of instruction booklets for the Railway Educational Bureau; locomotive road and refrigerator car tests in association with Professor G. A. Young; road and laboratory tests with respect to the behavior of locomotive cinders, in co-operation with the Monon; and a series of standing tests at Purdue with large New York Central freight locomotives. While at Purdue he continued research on locomotive cinders.

From June, 1917, when he left the university, to March, 1919, he was assistant general manager of the Diamond Chain & Manufacturing Company, Indianapolis, Ind. He left that company to become director of the Red Cross Institute for the Blind at Baltimore, Md., and in January, 1921, became secretary of the American Engineering Council, then known as the Federated American Engineering Societies. He remained in this capacity until 1934, when he became vice-president of the W. S. Lee Engineering Corporation, in charge of its Washington office. In January, 1935, Mr. Wallace was selected as director of the Division of Equipment Research of the A.A.R., which position he has held until his recent appointment. Purdue University conferred an honorary degree of Doctor of Engineering upon him in 1932.

Mr. Magee was born at New Hampton, Mo., on January 31, 1905, and was educated at Kansas State Teachers College, Pittsburg, Kan. He entered railway service in 1924 as a chainman on the Kansas City Southern at Pittsburg, and in 1925 was granted a leave of absence to complete a course in civil engineering at the University of Illinois. He graduated from that university in 1927 and received the Ira O. Baker award for scholarship in the civil engineering college. He returned to the Kansas City Southern as a draftsman in the chief engineer's office in June of that year and in 1929 he was assigned to make an extensive study for the purpose of determining the economical weight of rail. This study received nation-wide attention among railway men and resulted in the authorization of a material increase in the weight of rail used on the Kansas City Southern. In 1931 he was promoted to assistant engineer in the chief engineer's office, and in 1933 was given a leave of absence to make track tests for the Carnegie-Illinois Steel Company and the American GEO Company. In the following year he made an inspection trip through Germany and prepared an economic study for the American GEO Company. Upon his return to the Kansas City Southern in 1935, he served as chief draftsman for six months, then as assistant engineer, making studies and conducting test work, designing track materials and supervising track welding. Mr. Magee has been active in the work of the American Railway Engineering Association, and is at present a member of its committee on rail, its committee on track, its committee on the economics of railway labor and its special committee on stresses in track.

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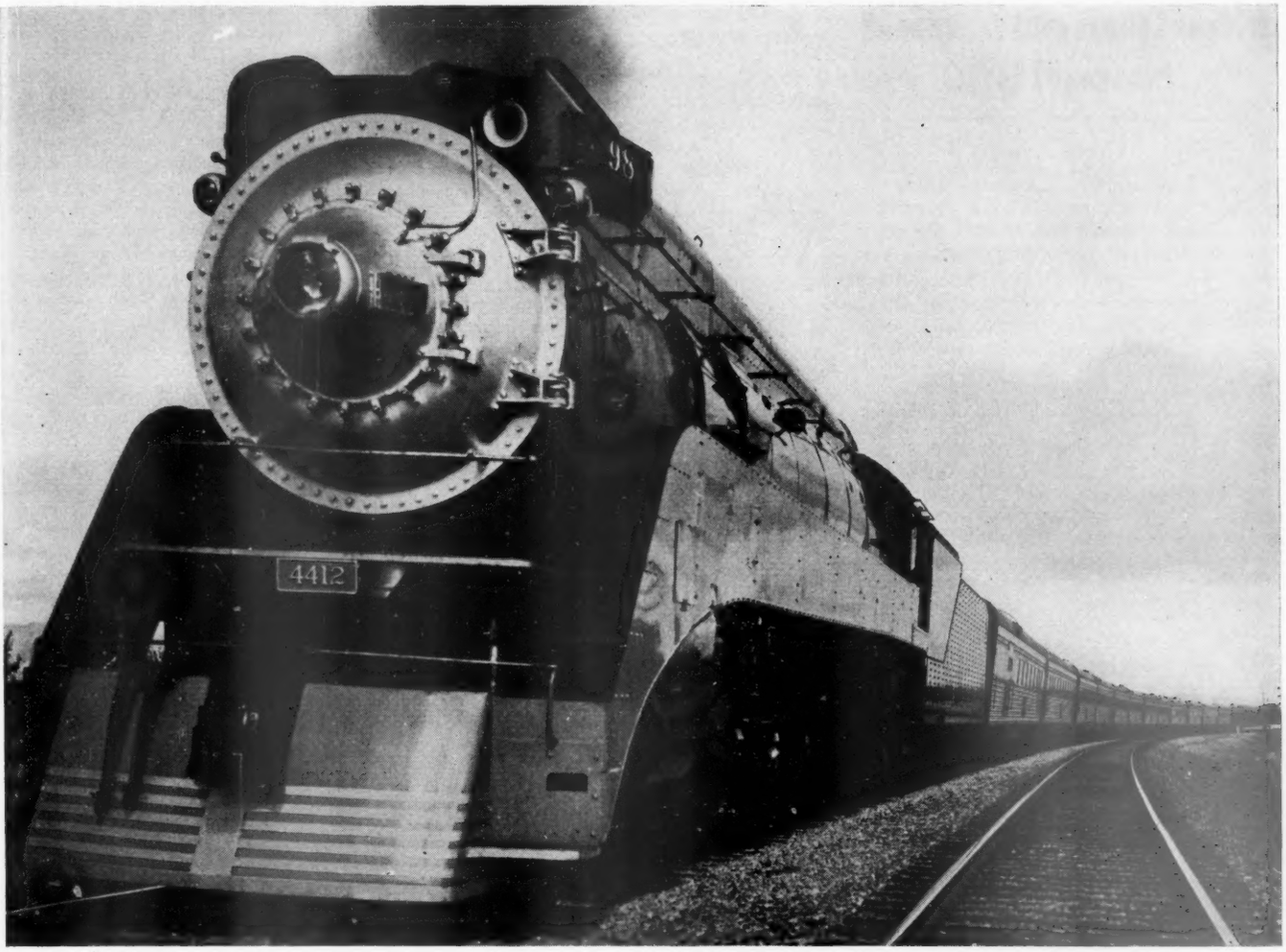

PROFITABLE RAILROADING *is a Production Job*

It's a job of moving the most tons per mile of road per day at the lowest cost. » » » It calls for Power that will smoothly and quickly start a capacity train and haul it over the road at the highest permissible speed. » » » Only Modern Power can do this. » » » Modern Power is balanced power. It incorporates in its design proved factors that give it high starting capacity and high horsepower capacity at high speeds. At the same time it has minimum weight on driving axles which means low maintenance cost for both locomotive and rail. » » » Modern Power reduces costs and increases net earnings.

LIMA LOCOMOTIVE WORKS, LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

Equipment and Supplies

Correction

The item which appeared in the *Railway Age* of August 7, to the effect that the Illinois Central had divided an order for 1,000 hopper cars equally between the Ryan Car Company and the Pressed Steel Car Company, is incorrect in that these cars were ordered last January as reported in the *Railway Age* of January 30.

LOCOMOTIVES

THE NORTHERN PACIFIC has ordered one rotary snow plow, with 12-ft. cut, from the American Locomotive Company.

THE DOMINION STEEL & COAL COMPANY has ordered one steam locomotive of the 0-4-0 type from the Montreal Locomotive Works.

THE JONES & LAUGHLIN STEEL CORP. has ordered one steam locomotive of the 0-4-0 type from the American Locomotive Company.

THE UNITED FRUIT COMPANY has ordered a 200-hp. Diesel-electric locomotive from the American Locomotive Company for service in Panama.

THE SOUTH AFRICAN RAILWAYS & HARBOURS is inquiring for a number of locomotives.

FREIGHT CARS

THE UNION PACIFIC is inquiring for 50 light-weight box cars of 50 tons' capacity.

THE MISSOURI-ILLINOIS is inquiring for 50 fifty-ton box cars and for 25 fifty-ton gondola cars.

THE GENERAL AMERICAN TRANSPORTATION CORPORATION (for the Sun Oil Company) has been authorized by Division 3 of the Interstate Commerce Commission to construct, for experimental service in the transportation of petroleum products, 25 tank-car tanks fabricated by the fusion-welding process.

THE PEORIA & PEKIN UNION has ordered 25 gondola cars of 50 tons' capacity from the Pressed Steel Car Company.

THE SOUTH AFRICAN RAILWAYS & HARBOURS is inquiring for 300 covered four-wheel cattle cars.

THE SORACABANA RAILWAYS of Brazil have ordered 500 thirty-six metric ton box cars from the Pullman-Standard Car Manufacturing Company. Mario Salles Souto is director, Sao Paulo, Brazil.

SIGNALING

The Interstate Commerce Commission, Division 3, has denied the petition of the trustees of the CHICAGO, ROCK ISLAND & PACIFIC that they be relieved from the further operation and maintenance of automatic train-control devices now in service on that part of the company's lines known as the Chicago and Rock Island Division, extending between Blue Island, Ill., and Rock Island.

THE DEPARTMENT OF CITY TRANSIT, CITY OF PHILADELPHIA, has awarded the Union Switch & Signal Company a contract for the complete installation of the required interlocking and automatic signaling system in the double track extension of the South Broad street subway from Lombard-South station to and including Snyder avenue station. The work includes an 11-lever electro-pneumatic interlocking at Snyder avenue, 24 automatic color-light signals, and 25 electro-pneumatic automatic train-stops.

THE BALTIMORE & OHIO CHICAGO TERMINAL has given a contract to the Union Switch & Signal Co. for all necessary materials for installing a "UR" (Union Route) interlocking at Western avenue, Chicago. The layout involves 16 electrically operated switches, four single switches and six cross-overs, and 33 color position, color, and position light signals. The method of control is of the type wherein the towerman operates one push button on the control panel at the initial signal and another push button at the end of the route to line up all switches and signal involved.

THE LOS ANGELES UNION PASSENGER TERMINAL COMPANY—This company is building terminal facilities in Los Angeles, Calif., for the Atchison, Topeka & Santa Fe, the Union Pacific and the Southern Pacific, which will be equipped with an electro-pneumatic interlocking plant for the terminal area. The terminal company has placed an order with the Union Switch & Signal Company, covering the necessary materials for this plant including a Model 14 electro-pneumatic interlocking machine, 127-lever, having 101 working levers, 15 spare levers and 11 spare spaces, complete with illuminated model board, and 107 Style A-5 electro-pneumatic switch and lock movements for 41 single switches, 22 movable point frogs and 44 double slip switches, 77 searchlight signals, 1400 d.c. relays, 258 copper oxide rectifiers, 85 track and lighting transformers, and 60 switch circuit controllers. The field installation will be carried out by the terminal company's signal construction forces.

Supply Trade

Thomas W. Delanty has resigned as vice-president of the **Ajax Hand Brake Company,** Chicago, effective August 1.

The Inland Steel Company has moved its St. Paul, Minn., office to new quarters in the First National Bank building.

E. S. Crosby, vice-president and general manager of the **Johns-Manville International Corporation,** New York, has been elected president of that corporation, a subsidiary of the **Johns-Manville Corporation.** The presidency of the International corporation has been held by **Lewis H. Brown.**

Schramm, Inc., manufacturers of air compressors, located at West Chester, Pa., are constructing a 25,000 sq. ft. addition

* * * *

Photo by Collons

Chicago & North Western Oil-Electric Switcher in Chicago Transfer Service

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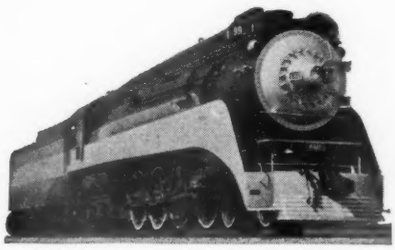
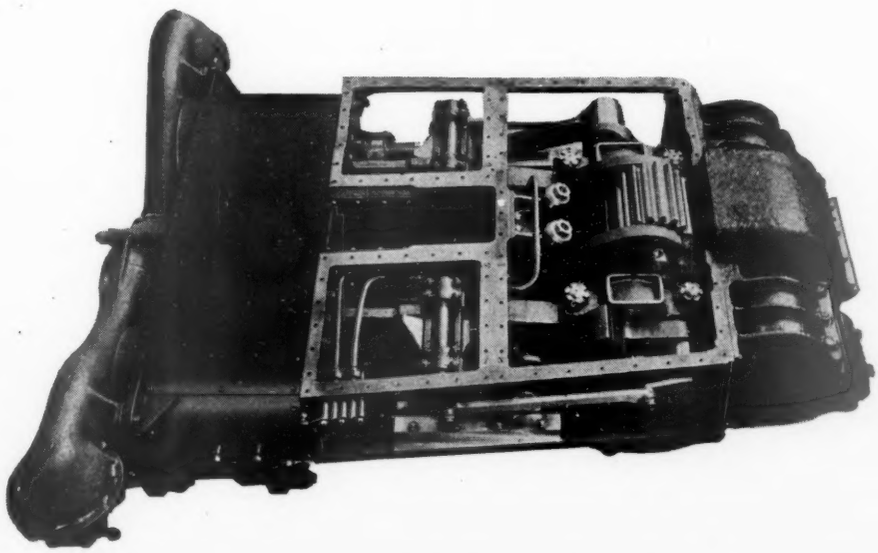
UP-TO-DATE LOCOMOTIVE DESIGN

Merely Combining Even the Best of Past Practices Will Not Meet the New Demands on Locomotive Service. New Ideas Must Be Developed, and Here Is One . . .



High-speed, high-horsepower locomotives are necessary today to meet the requirements of modern train operation. » » » For this high-speed operation, track safety and low track maintenance demand locomotives having minimum driving axle loads and low dynamic augment. » » » Lower driving wheel weights necessarily reduce starting power which is limited by the factor of adhesion. » » » On modern locomotives the Booster is essential to provide the additional power needed for starting. » » » By incorporating the Booster in the locomotive design you get a balanced locomotive having high starting capacity and sustained power at operating speeds. Such a locomotive has low driving axle load, low dynamic augment and can be operated safely at high speeds with minimum rail stresses.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

to their main plant, to be of brick, glass and steel construction. The new addition will house assembly lines, painting, testing and storage departments.

The Chicago Pneumatic Tool Company has moved its sales and service branch at Buffalo, N. Y., to 128 W. Chippewa street.

The M. D. Larkin Company, Dayton, Ohio, has been appointed distributor, in the Dayton area, for the **General Refractories Company,** Philadelphia, Pa.

W. H. Scherer has been appointed manager of the **Worthington Pump & Machinery Corporation's** plant at Holyoke, Mass. Mr. Scherer previously served for 30 years with the **Westinghouse Electric & Manufacturing Company.**

R. J. Platt, assistant general sales agent of the Sellers Manufacturing Company, Chicago, has resigned to become general manager of the **Positive Rail Anchor Company,** with headquarters at Chicago, to succeed **A. H. Told,** whose death on June 25 was reported in the *Railway Age* of July 3.

L. C. Ritterbush, sales engineer of the Union Switch & Signal Company, with headquarters at New York, has been promoted to assistant district manager with the same headquarters, effective July 1, and **C. M. Wheeler,** sales engineer at Swissvale, Pa., has been promoted to assistant district manager, with the same headquarters, effective August 1.

E. K. Lofton, formerly railway sales engineer of the **Dayton Rubber Manufacturing Company,** Chicago office, has been appointed district sales manager, railway division, with the same headquarters. **George S. Anderson** has been appointed service inspector to replace field testing and development duties formerly handled by Mr. Lofton.

Owen C. Jones has been appointed assistant to the president and in charge of sales promotion for the **Laminated Shim Company, Inc.,** Long Island City, N. Y. Mr. Jones has, for the past six years, been associated with the general publicity department of The Linde Air Products, a unit of Union Carbide & Carbon Corporation.

S. L. Poorman, representative of the **Westinghouse Air Brake Company** in the eastern district, has been appointed assistant eastern manager, with headquarters as formerly at New York City. Mr. Poorman's education was received in the public schools of his home town in eastern Pennsylvania, at Mercersburg Academy, and at the Carnegie Institute of Technology. He entered the employ of the Westinghouse Air Brake Company in 1912, as an apprentice in the test division of the engineering department. Early in 1916, he was assigned to the Atlanta, Ga., office as mechanical expert, and five years later was advanced to representative. In 1926, he was assigned to the Washington, D. C., office in the same capacity. Three years later he went to Boston, Mass., as representative and in October, 1930, was transferred to the New York office as representative, which position he held until his recent promotion.

The Johns-Manville Products Corporation, a subsidiary of the **Johns-Manville Corporation,** New York, has elected three new vice-presidents, as follows: **A. R. Fisher,** formerly manager of the company's factory at Manville, N. J.; **J. P. Kottcamp,** manager of the key Mid-Western factory at Waukegan, Ill.; and **Alexander Cromwell,** manager of the Pacific coast manufacturing operations.

Arthur H. Young, vice-president in charge of industrial relations of the **United States Steel Corporation,** will retire, effective October 1, after an active service of 30 years and will be succeeded as vice-president in charge of industrial relations, by **William Beye** of Chicago, a member of the law firm of Knapp, Beye, Allen & Cushing, division counsel of the corporation in Chicago for the past 35 years.

Frank H. Swayze, supply sales manager of the **Graybar Electric Company,** after 35 years of consecutive service, has been elected vice-president and director of domestic sales of the **Whitney Blake Company,** with headquarters in New Haven, Conn. Mr. Swayze started his career in 1901, in the auditing department of the American Telephone & Telegraph Company. In 1904, he was transferred to the purchasing department of the Western Electric Company. He became line material specialist in the New York district in 1919. In 1923, he was transferred to the general department as line material sales manager. He held this position until 1935, when he was appointed supply sales manager of Graybar.

OBITUARY

G. H. Dietz, of the Gould Coupler Corporation, with headquarters at New York, died on July 29, after several weeks illness, at his home in Mt. Vernon, N. Y., in his 48th year. Mr. Dietz left the operating department of the New York Central in 1911 to enter the employ of the Gould Coupler Company and was associated with that organization in its sales department at the time of his death.

James V. Watson, who retired as president of the United Supply & Manufacturing Company, Chicago, in 1934, died in that city on August 5. He was born in Battle Creek, Mich., on November 24, 1866, and after serving two years—1885-87—as a clerk in the Metropolitan National Bank of Chicago, he entered the employ of the Ajax Forge Company. In 1889, he resigned to become treasurer of the Griffin Wheel & Foundry Company, which position he held until 1891, when he became secretary and treasurer of the Hewitt Manufacturing Company. In 1902, he became president of the United Supply & Manufacturing Company, which position he held until his retirement in 1934. At various times, he headed the Watson-Patterson Company and the Watson Kerite Insulated Wire & Cable Company and was a partner in James S. Miller & Co.

Frank A. Barbey, who has marketed railway supplies in New England since 1887, died on August 10 at his home in Cambridge, Mass., at the age of 77. After spending the early years of his business life in ship chandlery and foreign trade, with several periods on the west coast of Africa and in South America, he established his own business in Boston in 1887. Mr. Barbey was associated with the development and introduction of many railroad devices. He had been an interested member of various supply associations and railroad clubs, and was a member of the finance committee of the New England Railroad Club at the time of his death.

Financial

BEAUFORT & MOREHEAD.—*Acquisition.*—This road has applied to the Interstate Commerce Commission for authority to acquire, for $12,850, and operate the Norfolk Southern's Beaufort extension from Beaufort, N. C., to Morehead City, 3.17 mi.

BEAUFORT & MOREHEAD.—*Stock.*—This road has applied to the Interstate Commerce Commission for authority to issue $15,850 of common stock, consisting of 317 shares with $50 par value; $12,850 would be issued at par in exchange for the Norfolk Southern's Beaufort extension, and the remaining $3,000 for working capital.

BENNETTSVILLE & CHERAW.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon that part of its line extending from Sellers, S. C., to Drake, 18 miles.

BEVIER & SOUTHERN.—*Construction.*—This company has applied to the Interstate Commerce Commission for authority to extend its line between Mile Post 7.636 and Mile Post 9.596, 1.96 miles, all in Macon County, Mo.

CHICAGO & EASTERN ILLINOIS.—*Intervention Granted.*—The Interstate Commerce Commission, Division 4, has permitted the National Bituminous Coal Commission to intervene in the reopened reorganization proceedings of this road.

CHICAGO, BURLINGTON & QUINCY.—*Acquisition.*—The Interstate Commerce Commission, Division 4, has authorized this company to acquire the properties of the North Platte Valley.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment and Joint Operation.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon the part of its Osceola-Des

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NO. 27 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

MARTIN'S CREEK VIADUCT

KINGSLEY, PA.

Martin's Creek Viaduct, built by the Delaware, Lackawanna and Western Railroad at Kingsley, Pennsylvania, has an overall length of 1,600 feet; it is 150 feet above the creek and 175 feet from rock. This reinforced concrete viaduct consists of seven—150-foot spans; two—100-foot spans and two—50-foot spans. Its construction required 77,500 cubic yards of concrete and 800 tons of reinforced steel. « « « The Security Sectional Arch for the Locomotive firebox was designed and developed to further the economy and effectiveness of the steam locomotive. Its development paralleled locomotive development. It is today an essential factor in the successful operation of high speed, high capacity trains.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists » » »

Moines branch extending from milepost 1.43 to milepost 3.67, 2.24 miles, and to operate, under trackage rights, over the line of the Chicago Great Western between mileposts 378.413 and 380.816, 2.403 miles, all in Des Moines, Iowa.

CHICAGO GREAT WESTERN.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized the trustees to assume liability for $1,500,000 of 3½ per cent equipment trust certificates, maturing in 20 equal annual installments of $75,000 on June 1, and December 1, of each year from December 1, 1937, to June 1, 1947. The issue has been sold at 100.135, to a group composed of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud & Co., Inc., making the average annual interest cost to the trustees approximately 3.47 per cent.

CLEVELAND & MAHONING VALLEY.—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue $2,936,000 of first mortgage 4 per cent bonds, to be sold at par and the proceeds applied to the payment, at maturity on January 1, 1938, of the company's outstanding 5 per cent 50-year gold bonds. The bonds will be issued in the denominations of $1,000, $5,000 and $10,000 and will mature on July 1, 1962.

EL PASO & SOUTHWESTERN.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control of the El Paso & Northeastern by purchase of the capital stock. The El Paso & Southwestern is a wholly-owned subsidiary of the Southern Pacific.

HILLSBORO & NORTH-EASTERN.—*Securities.*—The Interstate Commerce Commission, Division 4, has authorized the reduction of the interest rate from 6 to 4 per cent on $25,000 of this company's first mortgage gold bonds.

ILLINOIS CENTRAL.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a line extending from Buckingham, Ill., to Unz, 5.81 miles.

INDIAN VALLEY.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a line extending from Paxton, Calif., to Crescent Mills, 8.05 miles.

LEHIGH VALLEY.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to pledge and repledge from time to time as collateral security for short term notes aggregating $400,000 several issues of bonds totaling $11,200,000.

LONG ISLAND.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon that part of its Manhattan Beach branch extending from the northerly side of Avenue J to its terminus at or near Oriental Boulevard, Manhattan Beach, Brooklyn, New York, 3.32 miles.

LUFKIN, HEMPHILL & GULF.—*Abandonment.*—This road has applied to the Interstate Commerce Commission for authority to abandon its entire line, extending from Bronson, Texas, to Hemphill, 10.47 miles.

NEW YORK CENTRAL and TOLEDO & OHIO CENTRAL.—*Abandonment.*—These companies have applied to the Interstate Commerce Commission for authority to abandon a portion of the St. Mary's branch extending from Peoria, Ohio, to Bellefontaine, 16.55 miles.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.*—The Interstate Commerce Commission, Division 4, has authorized the United States Trust Company of New York to intervene in the reorganization proceedings of this company.

NEW YORK, NEW HAVEN & HARTFORD.—*Equipment Trust Certificates.*—The trustees have applied to the Interstate Commerce Commission for authority to assume liability for $1,660.000 of equipment trust certificates, to be dated September 1, and maturing in 10 equal annual installments of $166,000 on September 1, from 1938 to 1947.

NORTHERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Franklin, N. H., to Bristol, 13 miles.

PACIFIC COAST.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon that portion of its line between Santa Maria, Calif., and Guadalupe, 10.91 miles.

ST. PAUL BRIDGE & TERMINAL.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire the lines of the St. Paul Union Stockyards.

WAYNESBURG & WASHINGTON.—*Construction.*—This company has applied to the Interstate Commerce Commission for authority to construct and operate a line between Hackney, Pa., and a connection with the Pittsburgh, Cincinnati, Chicago & St. Louis, 17.4 miles, all in Washington County, Pennsylvania.

WICHITA FALLS & SOUTHERN.—*Extension of R.F.C. Note.*—This company has asked the Interstate Commerce Commission to approve a three months' extension of its $300,000 promissory note to the Reconstruction Finance Corporation which matures August 18.

Average Prices of Stocks and Bonds

	Aug. 10	Last week	Last year
Average price of 20 representative railway stocks..	51.35	50.61	55.45
Average price of 20 representative railway bonds..	79.83	79.39	81.76

Dividends Declared

Alabama & Vicksburg.—3 per cent, semi-annually, payable October 1 to holders of record September 8.

Portland & Ogdensburg.—$2.50, quarterly, payable August 31 to holders of record August 20.

Vicksburg, Shreveport & Pacific.—Common, 2½ per cent, semi-annually; Preferred, 2½ per cent, semi-annually, both payable October 1 to holders of record September 8.

Construction

LEHIGH VALLEY.—A contract has been awarded to the Ross & White Company, Chicago, for the design and construction at Easton, Pa., of a multiple track N & W type electric cinder-handling plant.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—A contract has been awarded to Ernest M. Ganley & Co., Inc., Minneapolis, Minn., for the construction of an addition to this company's Shoreham shops roundhouse at Minneapolis, at a cost of about $30,000.

PENNSYLVANIA - READING SEASHORE LINES.—The New Jersey Board of Public Utility Commissioners has ordered this road to eliminate grade crossings over its lines at Illinois avenue, Shore road, Station avenue, New road and Mill road, in Absecon, N. J. The work, which entails the elevation of the two-track railroad by means of an embankment to the west of the present right-of-way, extending approximately 3½ miles, will be performed according to a plan submitted by the railroad on May 24. February, 1938, has been set as the date for commencement of construction work, and October 1, 1939, as the date for its completion.

UNION PACIFIC.—A contract has been awarded to the Green River Lumber Company, Green River, Wyo., for the construction of an addition to the Union Pacific clubhouse and dormitory for employees at Green River, at a cost of $40,000. The addition is a two-story structure, 120 ft. by 30 ft., which will provide 52 more rooms. Present facilities total 93 sleeping rooms, in addition to various clubrooms. The building is used by Union Pacific employees, principally trainmen, who lay over at that point.

Railway Officers

EXECUTIVE

W. H. Guild, executive assistant of the Union Pacific, with headquarters at Denver, Colo., has been elected president of the Denver Union Terminal for one year, succeeding **H. B. Lautz,** general manager of the Atchison, Topeka & Santa Fe at Amarillo, Tex. **L. B. Lyman,** executive assistant of the Chicago, Burlington & Quincy, with headquarters at Denver, Col., has been elected vice-president.

Carl R. Gray, Jr., vice-president and general manager of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., has been elected executive vice-president in charge of operation and traffic, with the same headquarters. He was born on April 14, 1884, at Wichita, Kan., and graduated from the Uni-

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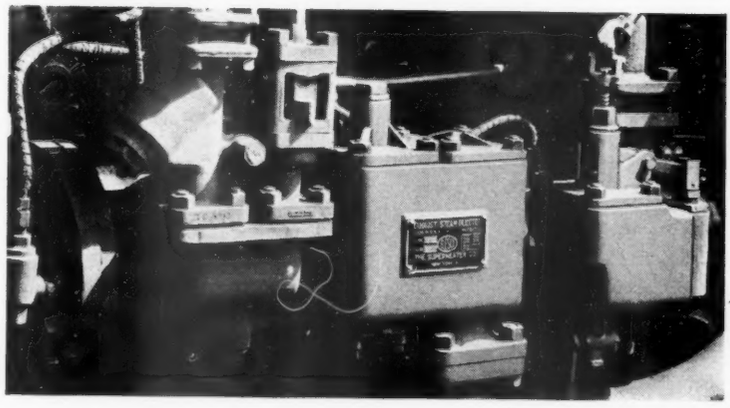

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versity of Illinois in 1911. He entered railway service in that year as a yard clerk on the St. Louis-San Francisco at St. Louis, Mo., and subsequently served as car order clerk and terminal trainmaster. In the same year he became principal engineer of construction on the Oregon Electric and the Spokane, Portland & Seattle, and from that time until 1917 he

Carl R. Gray, Jr.

served successively as trainmaster and superintendent on those two roads, as assistant to the general manager of the Chicago, Burlington & Quincy, as assistant to the general superintendent of the First district of the Frisco, as engineer for the Consolidated Coal Company at Baltimore, Md., and as president of the Baltimore Peach Bottom Slate Corporation at the same point. During the war he served from May, 1917, to April, 1919, first as a captain in the United States Army and then as a colonel. From 1919 to 1928 Mr. Gray was successively general superintendent and general manager of Montgomery, Ward & Co., Chicago, vice-president and general manager of the City Ice & Cold Storage Company, Kansas City, Mo., and vice-president of the Central Manufacturing District Bank, Chicago. On September 15, 1928, he was appointed manager of the industrial department of the Chicago & North Western, with headquarters at Chicago, which position he held until July 1, 1929, when he was appointed general manager of the Omaha at St. Paul. On January 1, 1930, he was elected vice-president and general manager of operation and maintenance, which position he held until his recent election.

FINANCIAL, LEGAL AND ACCOUNTING

C. L. Droit, assistant secretary and chief clerk to the president of the Western Pacific, has been promoted to secretary to succeed **W. G. Bruen,** retired.

OPERATING

E. F. Keene, superintendent of the Lehigh and Susquehanna divisions of the Central of New Jersey, with headquarters at Mauch Chunk, Pa., has been appointed superintendent of the Philadelphia division of the Reading at Philadelphia, Pa., succeeding **George N. Ewing,** who, at his request, because of ill health, has been granted a leave of absence. **R. F. Dickerson,** superintendent of the Shamokin division of the Reading, with headquarters at Tamaqua, Pa., has been appointed superintendent of the Central division of the Central of New Jersey at Jersey City, N. J., succeeding **A. R. Young,** who has been transferred in the same capacity to the Lehigh and Susquehanna division, to succeed Mr. Keene. **C. D. Barwick,** trainmaster of the Reading at Tamaqua, has been appointed superintendent of the Shamokin division of that road, succeeding Mr. Dickerson.

T. H. Hervey, superintendent of car service of the Ann Arbor, with headquarters at Toledo, Ohio, retired on August 7.

B. L. Jones has been appointed trainmaster of the Richmond, Fredericksburg & Potomac, with headquarters at Richmond, Va., to succeed **J. W. Hall,** retired.

Adlai M. Stevenson, who has been appointed superintendent of the Cincinnati division of the Louisville & Nashville, with headquarters at Latonia, Ky., was born on January 19, 1881, at Bennettstown, Christian county, Ky. He entered railway service on March 3, 1903, with the Louisville & Nashville as agent at Gracey, Ky., which position he held until May, 1904. From that date until May, 1906, he served as operator at various points on the Memphis line, and from May, 1906, to November, 1918, was ticket agent at Russellville, Ky. At that time he became chief clerk in the trainmaster's office on the Eastern Kentucky division, which position he held until November, 1919, when he became train dispatcher. He served in this capacity until April, 1920, and was then transferred to Louisville as traveling auditor. In September, 1921, he was transferred to the general manager's office, where he remained until July, 1922. Mr. Stevenson then returned to the Owensboro & Nashville division as trainmaster, and in February, 1923, was appointed inspector of transportation at Louisville, remaining in that position until May, 1929, when he was appointed assistant superintendent at Pensacola, Fla. On August 1, 1929, he was promoted to superintendent of the Owensboro division at Owensboro, Ky., and on July 1, 1931, when that division was consolidated with the Evansville & Memphis division, he was appointed assistant superintendent of the Louisville division, which position he has held until his recent promotion.

Roy H. Downes, who has been appointed assistant to the general manager of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., entered railway service in 1899 as a messenger in the telegraph office of the Santa Fe at Topeka. In 1902, he was transferred to the general superintendent's office and in 1905 to the general manager's office as file clerk. After holding the positions of transportation clerk, maintenance clerk and contract clerk, he was made chief of the contract department in 1921. On April 1, 1926, he became chief clerk in the general manager's office and on April 1, 1937, was made acting assistant to the general manager, which

Roy H. Downes

position he has held until his recent promotion.

E. A. Goeldner, who retired on August 1 as assistant to the general manager at Topeka, entered railway service as a stenographer and bookkeeper for the Kansas Southwestern in 1904. In the following year he entered the employ of the Atchison, Topeka & Santa Fe as a stenographer in the superintendent's office at Chillicothe, Ill., and later was transferred to Kansas City. Still later, he was transferred to the general superintendent's office at Topeka, following which he was promoted to secretary to the superintendent at Newton. In 1907 he resigned to enter the employ of the Chicago, Rock Island & Pacific as a secretary, which position he held until 1908, when he returned to the general superintendent's office of the Santa Fe at Topeka. After serving as freight car clerk for two years

E. A. Goeldner

he was appointed secretary to the general manager at Amarillo. After working as maintenance clerk and general clerk until 1913, he was appointed assistant to the general manager at Amarillo and in 1916 was transferred to Topeka, which position he held until April 1, 1937, when he was granted a leave of absence because of ill health. On August 1, he retired upon pension.

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HUNT-SPILLER *Air Furnace* GUN IRON

ENGINEERING AND SIGNALING

C. J. Code, division engineer of the Panhandle division of the Pennsylvania, has been appointed assistant to chief engineer maintenance of way of the Central region, with headquarters as before at Pittsburgh, Pa.

George A. Belden, architect in the chief engineer's office of the Central of Georgia, has been promoted to engineer of bridges and buildings at Savannah, Ga., succeeding **J. B. Maddock,** who has retired from active service, effective August 1, after more than 34 years of service in the engineering department of that road. Mr. Belden has been in the service of the Central of Georgia for the past 25 years, all in the engineering department at Savannah. He entered the service of the C. of G. on July 1, 1912, as a draftsman and two years later was promoted to assistant engineer. In 1917 he was promoted to architect in the bridges and buildings department.

Mr. Maddock served with the engineering department of the Atlantic Coast Line and the old Plant system prior to entering the service of the Central of Georgia on April 1, 1903, as bridge engineer. In 1905 he was promoted to engineer of bridges and buildings, serving in that capacity for the past 30 years.

TRAFFIC

S. J. Henry, agent of the North Pacific Coast Freight Bureau, Seattle, Wash., has been appointed chairman of the executive committee, and has been succeeded by **W. J. Bohon.**

C. D. Lafferty, assistant general freight agent of the Southern Pacific Lines, with headquarters at Portland, Ore., has been appointed industrial agent, with headquarters at San Francisco, Cal., and has been succeeded by **F. A. Smith,** assistant general freight agent at San Francisco, who, in turn, has been succeeded by **H. L. Smith.**

C. F. Lauer, assistant traffic manager of the Southern, with headquarters at New Orleans, La., has been appointed assistant freight traffic manager at Jacksonville, Fla., succeeding **R. W. Wirt. L. E. Wetterau,** assistant general freight agent at Knoxville, Tenn., has been appointed assistant traffic manager at New Orleans, La., succeeding Mr. Lauer. **W. M. King,** assistant freight traffic manager at Charlotte, N. C., has been appointed eastern traffic manager at New York, succeeding **L. B. Smith,** who has been appointed general agent at Charleston, S. C. Mr. Smith succeeds **C. B. Walker,** who has been appointed assistant freight traffic manager at Charlotte, succeeding Mr. King. **G. C. Potter** has been appointed district freight agent at Philadelphia, Pa., in place of **J. A. Cooper,** who has been appointed assistant general freight agent at Knoxville, Tenn., to succeed Mr. Wetterau. **W. A. Wright** has been appointed division freight agent at Norfolk, Va., and **W. H. Spence** has been appointed foreign freight agent at Norfolk. **J. M. Woodruff** becomes general agent at Norfolk, with jurisdiction over traffic and marine operation. **C. H. Dunn** has been appointed district freight agent at High Point, N. C. **P. H. McWhorter** has been appointed freight traffic representative, succeeding **C. B. Fordham,** who has been appointed division freight agent, succeeding **L. P. Hungerford,** promoted.

MECHANICAL

L. T. Fife, assistant master mechanic of the Southern Pacific, with headquarters at Sparks, Nev., has been promoted to master mechanic of the San Joaquin division, with headquarters at Bakersfield, Cal., to succeed **J. J. Keller,** retired.

J. E. Friend, division general foreman of the Texas & Pacific, with headquarters at Shreveport, La., has been appointed master mechanic of the Rio Grande division, with headquarters at Big Spring, Tex., to succeed **J. N. Blue,** deceased. **F. R. Denney,** assistant master mechanic, with headquarters at Big Spring, Tex., has been promoted to master mechanic of the Louisiana division, with headquarters at Shreveport, La., the office of division general foreman having been abolished.

PURCHASES AND STORES

C. J. Kubler has been appointed general storekeeper of the Kansas City Southern with headquarters at Pittsburg, Kan.

E. L. Fries, special representative of the executive vice-president of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to general purchasing agent, with the same headquarters, to succeed **U. K. Hall,** who has been reappointed general storekeeper at Omaha.

SPECIAL

Walter A. Johnson, editor of the Katy Employees' Magazine of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., has been promoted to director of the publicity and advertising department with the same headquarters, to succeed **J. F. Rector,** who has resigned to become director of publicity-advertising of the Missouri Pacific.

OBITUARY

Frank A. Shaw, assistant general freight agent of the Illinois Central, with headquarters at New Orleans, La., died in that city on August 1 after an illness of two weeks.

Edwin C. Washburn, assistant to president of the Baltimore & Ohio, with headquarters at New York, died on August 10 at his home in Englewood, N. J., of heart disease at the age of 67 years.

Arthur L. Parmelee, treasurer of the New York, Ontario & Western, who died suddenly of a heart attack at his home on August 4, as reported in the *Railway Age* of August 7, was 72 years old. Mr. Parmelee was born in Newburgh, N. Y., on August 25, 1864, and entered the service of the New York, Ontario & Western as a clerk in 1880, later becoming cashier. In 1900 he became assistant treasurer and was appointed treasurer in 1930.

* * * *

A Fleet of Marmon-Herringtons Used in Feeder Service by the Oahu Railway of Hawaii

Operating Revenues And Operating Expenses Of Class I Steam Railways

Compiled from 138 Monthly Reports of Revenues and Expenses Representing 142 Class I Steam Railways

FOR THE MONTH OF JUNE, 1937 AND 1936

Item	United States		Eastern District		Southern District		Western District	
	1937	1936	1937	1936	1937	1936	1937	1936
Miles of road operated at close of month	235,743	236,514	58,217	58,447	44,780	44,935	132,746	133,132
Revenues:								
Freight	$281,878,152	$268,479,412	$119,059,317	$114,114,154	$52,315,156	$50,945,108	$110,503,679	$103,420,150
Passenger	38,510,315	* 34,830,141	20,980,675	19,173,229	4,492,710	4,023,016	13,036,930	11,633,896
Mail	7,871,712	7,704,496	2,985,502	2,973,895	1,388,715	1,341,879	3,497,495	3,388,722
Express	6,567,297	5,026,277	2,881,798	2,008,551	1,054,787	780,432	2,630,712	2,237,294
All other transportation	7,459,264	7,058,214	3,889,999	3,743,115	715,476	644,967	2,853,789	2,670,132
Incidental	8,667,018	6,820,994	4,406,422	3,545,851	960,180	788,736	3,300,416	2,486,407
Joint facility—Cr.	1,062,340	927,675	313,396	270,859	227,259	232,432	521,685	424,384
Joint facility—Dr.	312,408	226,521	56,324	49,870	23,470	21,796	232,614	154,855
Railway operating revenues	351,703,690	330,620,688	154,460,785	145,779,784	61,130,813	58,734,774	136,112,092	126,106,130
Expenses:								
Maintenance of way and structures	48,539,533	42,631,766	18,350,108	15,959,372	7,386,762	6,976,900	22,802,663	19,695,494
Maintenance of equipment	72,439,279	64,130,608	33,199,460	28,618,641	12,910,274	11,689,363	26,329,545	23,822,604
Traffic	8,819,172	8,710,651	3,195,508	3,221,169	1,603,844	1,560,645	4,019,820	3,928,837
Transportation	121,667,687	110,672,874	54,834,509	50,755,910	19,450,128	17,882,222	47,383,050	42,034,742
Miscellaneous operations	3,436,923	2,863,672	1,508,196	1,286,669	345,769	282,230	1,582,958	1,294,773
General	11,309,098	13,265,679	4,583,686	5,873,636	2,196,199	2,229,297	4,529,213	5,162,746
Transportation for investment—Cr.	633,040	510,479	73,874	42,820	106,659	104,476	452,507	363,183
Railway operating expenses	265,578,652	241,764,771	115,597,593	105,672,577	43,786,317	40,516,181	106,194,742	95,576,013
Net revenue from railway operations	86,125,038	88,855,917	38,863,192	40,107,207	17,344,496	18,218,593	29,917,350	30,530,117
Railway tax accruals	†16,507,517	26,877,555	†14,012,599	11,540,840	†3,799,623	5,440,206	†‖1,304,705	9,896,509
Railway operating income	69,617,521	61,978,362	24,850,593	28,566,367	13,544,873	12,778,387	31,222,055	20,633,608
Equipment rents—Dr. balance	7,877,348	8,149,149	3,440,925	3,632,377	413,920	605,853	4,022,503	3,910,919
Joint facility rent—Dr. balance	2,800,297	3,570,541	1,466,742	1,902,364	364,079	519,165	969,476	1,149,012
Net railway operating income	‡58,939,876	§50,258,672	19,942,926	23,031,626	12,766,874	11,653,369	26,230,076	15,573,677
Ratio of expenses to revenues (per cent)	75.51	73.12	74.84	72.49	71.63	68.98	78.02	75.79
Depreciation included in operating expenses	16,311,354	16,083,161	7,244,236	7,003,183	3,128,350	3,164,845	5,938,768	5,915,133
Total maintenance before depreciation	104,667,458	90,679,213	44,305,332	37,574,830	17,168,686	15,501,418	43,193,440	37,602,965
Net railway operating income before depreciation	75,251,230	66,341,833	27,187,162	30,034,809	15,895,224	14,818,214	32,168,844	21,488,810

FOR SIX MONTHS ENDED WITH JUNE, 1937 AND 1936

Average number of miles operated	235,923	236,730	58,286	58,562	44,793	44,942	132,844	133,226
Revenues:								
Freight	$1,705,082,337	$1,525,403,247	$744,221,165	$664,975,806	$334,391,597	$305,161,941	$626,469,575	$555,265,500
Passenger	¶211,694,466	**192,350,816	115,737,892	109,435,356	32,073,821	27,647,784	63,882,753	55,267,676
Mail	47,865,455	45,978,334	18,292,872	17,638,013	8,466,104	8,263,079	21,106,479	20,077,242
Express	30,732,578	28,722,591	12,339,971	11,314,591	7,003,002	6,556,556	11,389,605	10,851,444
All other transportation	43,495,151	40,426,067	22,516,991	21,328,356	4,590,204	4,063,818	16,387,956	15,033,893
Incidental	43,962,890	35,728,942	22,680,940	19,307,900	6,431,883	5,415,683	14,850,067	11,005,359
Joint facility—Cr.	5,929,745	5,377,551	1,849,126	1,629,974	1,262,822	1,192,664	2,817,797	2,554,913
Joint facility—Dr.	1,492,185	1,407,405	334,680	301,555	135,602	126,832	1,021,903	979,018
Railway operating revenues	2,087,270,437	1,872,580,143	937,304,277	845,328,441	394,083,831	358,174,693	755,882,329	669,077,009
Expenses:								
Maintenance of way and structures	242,210,489	216,649,964	95,603,262	84,207,702	43,350,324	39,600,999	103,256,903	92,841,263
Maintenance of equipment	420,741,644	380,528,773	193,749,004	172,548,857	74,681,634	69,267,399	152,311,006	138,712,517
Traffic	52,202,829	49,101,668	19,172,612	18,083,323	9,948,847	9,631,430	23,081,370	21,386,915
Transportation	747,212,115	681,461,002	338,256,331	315,147,899	123,810,358	113,846,510	285,145,426	252,466,593
Miscellaneous operations	19,767,654	16,654,571	8,871,294	7,710,331	2,767,561	2,264,118	8,128,799	6,680,122
General	78,911,571	78,426,525	34,025,471	34,528,191	13,922,357	13,316,749	30,963,743	30,581,585
Transportation for investment—Cr.	2,128,312	1,738,697	301,846	182,137	332,265	236,955	1,494,201	1,319,605
Railway operating expenses	1,558,917,990	1,421,083,806	689,376,128	632,044,166	268,148,816	247,690,250	601,393,046	541,349,390
Net revenue from railway operations	528,352,447	451,496,337	247,928,149	213,284,275	125,935,015	110,484,443	154,489,283	127,727,619
Railway tax accruals	††166,123,163	148,875,849	††77,130,624	62,124,355	††36,806,295	30,845,650	††52,186,244	55,905,844
Railway operating income	362,229,284	302,620,488	170,797,525	151,159,920	89,128,720	79,638,793	102,303,039	71,821,775
Equipment rents—Dr. balance	46,625,754	45,312,221	20,201,979	21,407,735	3,642,440	2,821,258	22,781,335	21,083,228
Joint facility rent—Dr. balance	18,261,752	19,291,839	10,158,492	10,564,408	1,884,460	2,300,401	6,218,800	6,427,030
Net railway operating income	‡‡297,341,778	§§238,016,428	140,437,054	119,187,777	83,601,820	74,517,134	73,302,904	44,311,517
Ratio of expenses to revenues (per cent)	74.69	75.89	73.55	74.77	68.04	69.15	79.56	80.91
Depreciation included in operating expenses	97,510,373	96,767,839	43,191,971	42,118,945	18,742,810	19,144,807	35,575,592	35,504,087
Total maintenance before depreciation	565,441,760	500,410,898	246,160,295	214,637,614	99,289,148	89,723,591	219,992,317	196,049,693
Net railway operating income before depreciation	394,852,151	334,784,267	183,629,025	161,306,722	102,344,630	93,661,941	108,878,496	79,815,604

* Includes $116,515 sleeping and parlor car surcharge.

† Includes credits resulting from reversal of charges previously made under the requirements of an Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress) and charges on account of provisions of the "Carriers Taxing Act of 1937".

‖ Deficit or other reverse items.

‡ Includes charges to Railway Tax Accruals under the requirements of the Social Security Act of 1935 in the total amount of $3,306,410; also includes charges and credits to Railway Tax Accruals resulting in a net credit of $8,008,216, because of provisions of the "Carriers Taxing Act of 1937", approved June 29, 1937, and repeal of the Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress.) Separate totals of these charges and credits are not available.

§ Includes charges to Railway Tax Accruals in the total amount of $5,000,255 itemized as follows: $1,461,063 for taxes under the requirements of the Social Security Act of 1935, and $3,539,192 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress.)

¶ Includes $7,070 sleeping and parlor car surcharge.

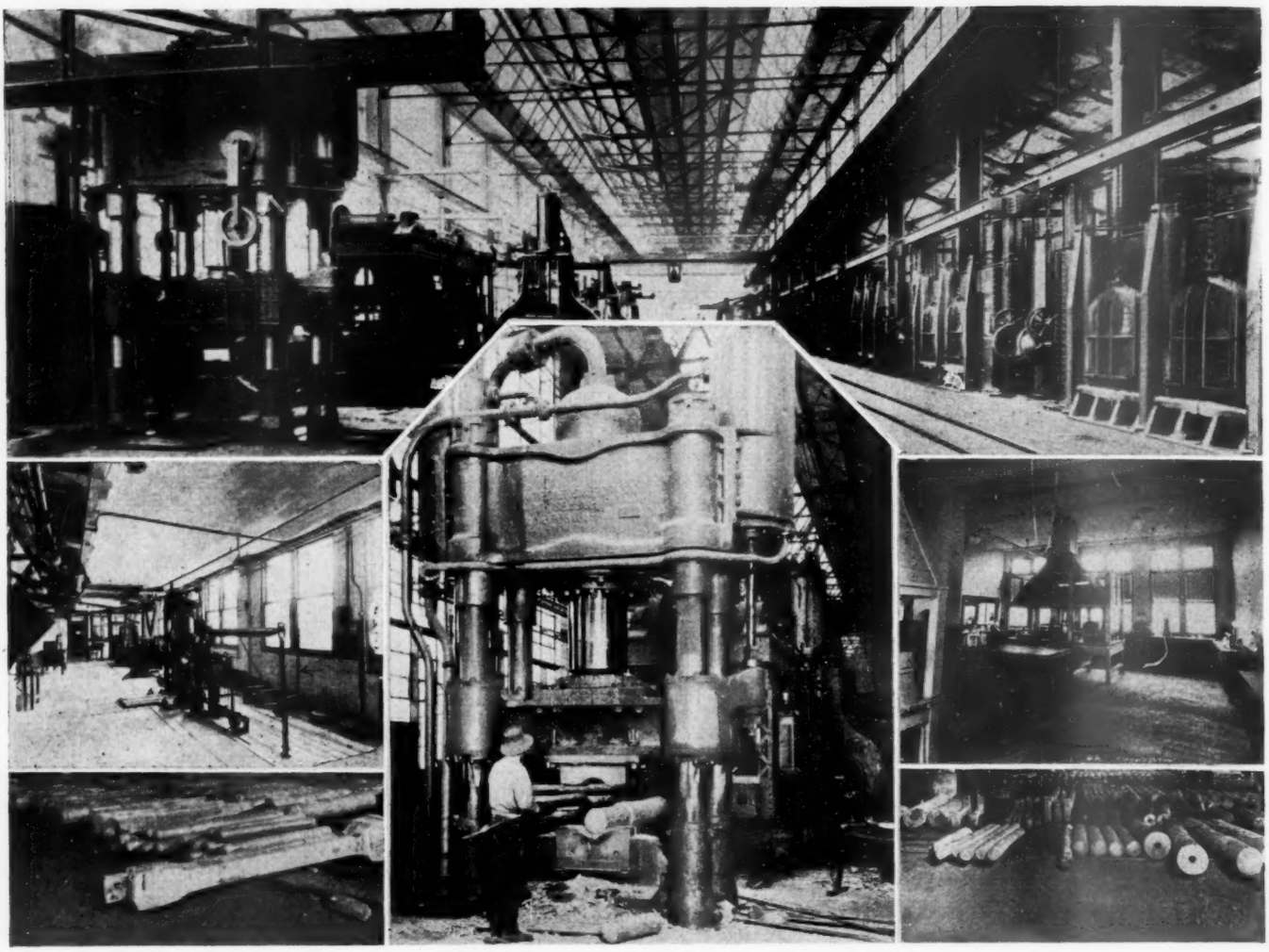
** Includes $4,048,185 sleeping and parlor car surcharge.

†† Includes credits resulting from reversal of charges previously made under the requirements of an Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress) and charges on account of provisions of the "carriers Taxing Act of 1937".

‡‡ Includes charges to Railway Tax Accruals under the requirements of the Social Security Act of 1935 in the total amount of $19,249,516; also includes charges and credits to Railway Tax Accruals resulting in a net charge of $13,940,793, because of provisions of the "Carriers Taxing Act of 1937", approved June 29, 1937, and repeal of the Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress.) Separate totals of these charges and credits are not available.

§§ Includes charges to Railway Tax Accruals in the total amount of $23,699,110 itemized as follows: $8,580,085 for taxes under the requirements of the Social Security Act of 1935, and $15,119,025 under the requirements of an Act approved August 29, 1935, levying an excise upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress.)

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.



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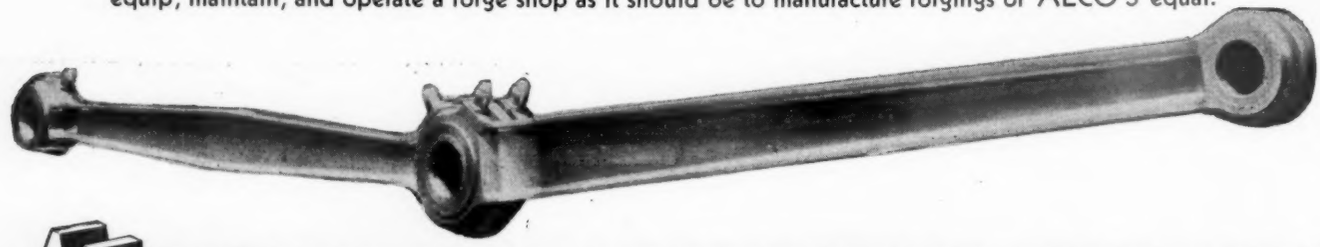

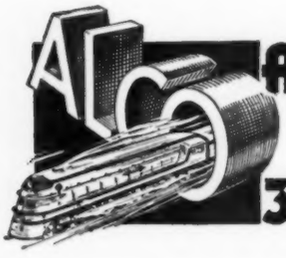

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